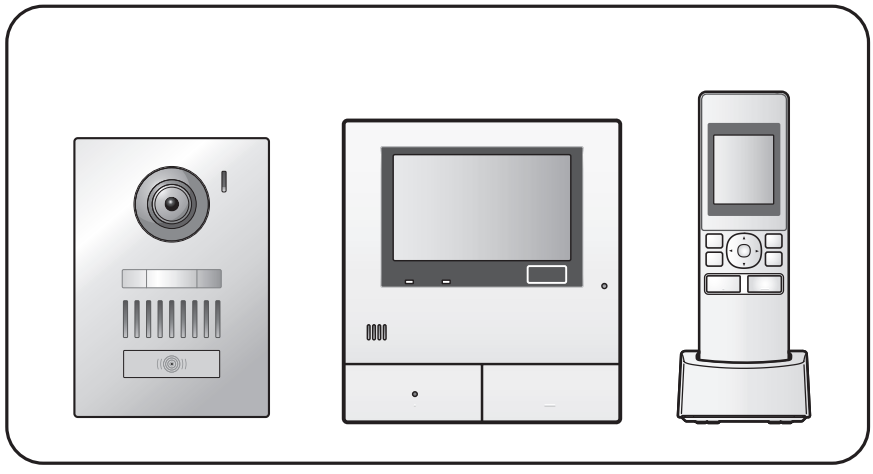
Panasonic

Operating Instructions

Wireless Video Intercom System

Model No. **VL-SWD501BX**
VL-SWD501UBX



Thank you for purchasing a Panasonic product.
Please read this manual before using the product and save it for future reference.

Installation Guide is supplied separately.

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PNQX6468ZA PC1213MT0

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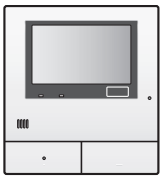
1.1 Model composition

Model composition	Main monitor station (Main monitor*1)	Wireless monitor station (Sub monitor*1)	Door station (Doorphone*1)
VL-SWD501BX	VL-MWD501BX	VL-WD613BX	VL-V554BX
VL-SWD501UBX	VL-MWD501BX	VL-WD613BX	VL-V554UBX

*1 Product names used in this manual.

Product figure		
		
VL-MWD501BX	VL-WD613BX	VL-V554BX (surface mount)/ VL-V554UBX (flush mount)

- The illustrations in the supplied manual(s) may vary slightly from the actual product.

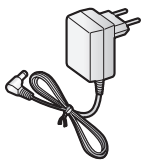
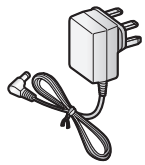
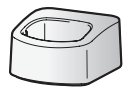
Caution:

- **Before attempting to connect or operate this product, please read the label on the rear of the main monitor.**

1.2 Accessory information

1.2.1 Supplied accessories

For the sub monitor

Accessory item	 AC adaptor/ PNLV226BX*1	 AC adaptor/ PNLV226E*1	Rechargeable batteries	 Charger
Quantity	1	1	2	1

*1 Appropriately dispose of the AC adaptor that will not be used.

Note:

- Accessories for installing the main monitor and the doorphone are described in the supplied Installation Guide.
- You will need the following additional items (locally procured) to install the charger on the wall.
  - Screws × 2 (for wall mounting):
    Prepare the screws according to the material, structure, strength and other factors of the mounting area and the total weight of objects to be mounted.

1.2.2 Additional/replacement accessories

Please contact your nearest Panasonic dealer for sales information.

As of December, 2013

Accessory item	Order number	Number of devices that can be connected
Rechargeable batteries	HHR-4MY*1 Battery type: – Nickel metal hydride (Ni-MH) – 2 x AAA (R03) size for each handset	-
Door station (called doorphone)	VL-V554BX (surface mount)	Max. of 2 (including the supplied devices)
	VL-V554UBX (flush mount)	
	VL-V566BX*2 (surface mount)	
Lobby station*3 (called doorphone) ● for apartment complexes	VL-V590BX*2	
Sub monitor	VL-WD613BX	Max. of 6 (including the supplied devices)
Wireless sensor camera (called camera)	VL-WD812BX	Max. of 4
DECT repeater (called repeater)	VL-FKD2BX	Max. of 2

*1 Replacement batteries may have a different capacity from that of the supplied batteries.

*2 The specifications for the VL-V566BX and VL-V590BX differ to the specifications for the supplied doorphone. Generally, functions listed in this manual as available for the doorphone are available for the supplied doorphone, VL-V566BX, and VL-V590BX. However, the following functions are not available for the VL-V566BX and VL-V590BX.
- Functions that are only unavailable for the VL-V590BX:
  – Monitoring the outside with the doorphone (→ page 17)
- Functions that are unavailable for both the VL-V566BX and VL-V590BX:
  – Wide/zoom settings and zoom position settings (→ page 14)
  – Doorphone LED lights' illumination settings (→ page 33)
  – Doorphone backlight compensation settings (→ page 33)

*3 When using a lobby station:
- Make sure to connect the lobby station to terminal D1/D2 on the rear of the main monitor. (See the Installation Guide for details.)
- The lobby station connected to terminal D1/D2 works as doorphone 1.

1.3 General information

- In the event of problems, you should contact your equipment supplier in the first instance.

For your future reference

We recommend keeping a record of the following information to assist with any repair under warranty.

Serial No.	Date of purchase
(found on the rear of the main monitor) Name and address of dealer	

Attach your purchase receipt here.

1.4 Operating procedures and icons

■ This manual provides operating procedures for the product. These operating procedures can be understood in the following way:

Main monitor example:

From the top menu of the main monitor, touch → → [Register/Cancel] → [Register] → [Camera].

Meaning

From the top menu of the main monitor, touch , , [Register/Cancel], [Register], and then [Camera].

– Words written in [ ] indicate touch buttons.
– Words written in " " indicate items or messages displayed on the screen that cannot be selected.

Sub monitor example:

( ) → : "Ringtone" → (OK)

Meaning

Press the round button in the centre of the multifunction button ( ), select "Ringtone" by pressing up or down with the multifunction button ( ), and then press the round button ( ).

– Words written in " " indicate settings, items, and messages displayed on the screen.
– Words or icons written in "( )" after multifunction buttons (F1 , , or F2) indicate the words or icons displayed on the screen above the multifunction buttons.

■ Icons are used in the following way in this manual.

: Indicates that the information or procedure is for the main monitor.

: Indicates that the information or procedure is for the sub monitor.

: Indicates that the information or procedure is for the camera.

: Indicates that the information or procedure is for the repeater.

1.5 Trademarks and registered trademarks

- SDXC Logo is a trademark of SD-3C, LLC.
- Mac OS, QuickTime, and QuickTime Logo are trademarks of Apple Inc., registered in the U.S. and other countries.
- Microsoft, Windows, Windows Vista, and Windows Media are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- The software of the sub monitor is based in part on the work of the Independent JPEG Group.
- All other trademarks identified herein are the property of their respective owners.

1.6 Abbreviations

The following abbreviations are used in this manual.

- Microsoft® Windows® XP operating system is described as Windows XP.
- Microsoft® Windows Vista® operating system is described as Windows Vista.
- Microsoft® Windows® 7 operating system is described as Windows 7.
- Microsoft® Windows® 8 operating system is described as Windows 8.
- SDXC/SDHC/miniSDHC/microSDHC/SD memory card/miniSD memory card/microSD memory card are described as SD card.

2.1 For your safety

To prevent severe injury and loss of life/property, read this section carefully before using the product to ensure proper and safe operation of your product.

⚠ WARNING

Preventing fire and electric shock

- Use only the power source marked on the product. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- Use only the specified power supply unit, AC adaptor, and AC cable.
- Do not attempt to disassemble or modify this product. Contact an authorised service centre for repairs.
- Never touch the power supply unit, AC adaptor, and AC cable with wet hands.
- Do not touch the power supply unit, AC adaptor, and AC cable during an electrical storm.
- Do not use the product (excluding the doorphone) in areas that are exposed to rain, moisture, steam, or oily smoke, or areas that have excessive dust.
- Do not perform any actions (such as fabricating, twisting, stretching, bundling, forcibly bending, damaging, altering, exposing to heat sources, or placing heavy objects on the power cable and the AC adaptor) that may damage the power cable and the AC adaptor. Using the product with a damaged power cable or AC adaptor may cause electric shock, short circuits, or fire. Contact an authorised service centre for repairs.
- Do not overload the power outlet or wiring above the specified levels. Overloading by having many connections on one power outlet may cause heat generation, resulting in a fire.
- Never put metal objects inside the product. Never spill any liquid on the product (excluding the doorphone).
  If metal objects enter the product or the product becomes wet, unplug the product from the power outlet and contact an authorised service centre.
- Do not use a microwave oven or other devices, such as electromagnetic cookers, to speed up the drying process of any parts of the product.
- Completely insert the AC adaptor and AC cable plug into the power outlets. Failure to do so may cause electric shock and/or excessive heat resulting in a fire. Do not use damaged AC adaptors, AC cable plugs, or power outlets.
- Regularly remove any dust, etc., from the AC adaptor and AC cable plug by unplugging them from the power outlets, then wiping them with a dry cloth. Accumulated dust may cause an insulation defect from moisture, etc., resulting in a fire.
- Unplug the product from the power outlet if the product emits smoke, an abnormal smell or makes unusual noise, or if the product has been dropped or physically damaged. These conditions can cause fire or electric shock. Confirm that smoke has stopped emitting and contact an authorised service centre.
- Hold the main body (not the metal parts) of the AC adaptor and AC cable plug when unplugging them. Unplugging the AC adaptor and AC cable plug while holding their cords or cords' plugs may result in fire, electric shock, or injury.

Preventing accidents

- SD cards may become a choking hazard. Keep SD cards out of reach of children. If you suspect a child has swallowed an SD card, seek medical advice immediately.
- Do not use the product in health care facilities if any regulations posted in the area instruct you not to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF (radio frequency) energy.
- Do not install or use this product near automatically controlled devices such as automatic doors and fire alarms. Radio waves emitted from this product may cause such devices to malfunction, resulting in an accident.
- Consult the manufacturer of any personal medical devices, such as pacemakers or hearing aids, to determine if they are adequately shielded from external RF (radio frequency) energy. (The product operates in the frequency range of 1.88 GHz to 1.90 GHz, and the RF transmission power is 250 mW (max.).)

⚠ CAUTION

Preventing accidents, injuries, and property damage

- Do not use the product in unstable areas or areas prone to strong vibrations. This may cause the product to fall, resulting in damage to the product or injury.
- Do not put your ear(s) near the speaker, as loud sounds emitted from the speaker may cause hearing impairment.
- Do not place coins or other metal objects in the charger. Metal objects may become hot, causing burns.
- Do not place magnetic cards or other devices that store data magnetically (such as credit cards) near the charger. Failure to do so may make the cards or devices unusable.

Sub monitor batteries

Preventing leakage, heat generation, rupture, or accidents

- We recommend using the batteries noted on page 4. USE ONLY rechargeable Ni-MH batteries AAA (R03) size.
- Do not mix old and new batteries.
- Do not open or mutilate the batteries. Released electrolyte from the batteries is corrosive and may

cause burns or injury to the eyes or skin. The electrolyte is toxic and may be harmful if swallowed.
- Charge the batteries provided or identified for use with the product only, in accordance with the instructions and limitations specified in this manual.
- Do not heat batteries or dispose of batteries in a fire.
- Do not touch the ends of batteries (⊕, ⊖) with metal objects.
- Handle the batteries with care. Do not allow conductive materials such as rings, bracelets or keys to touch the batteries, otherwise a short circuit may cause the batteries and/or the conductive material to overheat and cause burns.
- Only use the specified charger and AC adaptor to charge the batteries. Failure to follow these instructions may cause the batteries to swell or explode.

2.2 Important safety instructions

When using this product, basic safety precautions should always be followed to reduce the risk of fire, electric shock, or personal injury.

1. Do not use this product near water. For example, near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.
2. Use only the power supply unit, AC adaptor, AC cable, and batteries indicated in this manual.
   Do not dispose of the battery(ies) in a fire.
   They may explode. Check with local codes for possible special disposal instructions.

SAVE THESE INSTRUCTIONS

2.3 For best performance

Location/avoiding noise (main monitor/sub monitor)

The main monitor, sub monitor, and other compatible Panasonic units use radio waves to communicate with each other. (The product operates in the frequency range of 1.88 GHz to 1.90 GHz, and the RF transmission power is 250 mW (max.).)

- For maximum coverage (approx. 100 m) and noise-free communications, install your main monitor:
  - at a convenient, high, and central location with no obstructions between the sub monitor and main monitor in an indoor environment.
  - away from electronic appliances such as TVs, radios, personal computers, wireless devices, or digital cordless phones.
  - facing away from radio frequency transmitters, such as external antennas of mobile phone stations. (Avoid installing the main monitor near a window.)
- Coverage and voice quality depends on the local environmental conditions.
- Do not place the charger near TVs, speakers, or other devices that emit electromagnetic waves. Failure to do so may prevent the charger from charging the product.

Environment (main monitor/sub monitor)

- Keep the unit (main monitor and sub monitor) away from electrical noise generating devices, such as fluorescent lamps and motors.
- The unit should not be exposed to direct sunlight.
- The unit should be kept away from heat sources such as radiators, cookers, etc. It should not be placed in rooms where the temperature is less than 0 °C or greater than 40 °C. Damp basements should also be avoided.
- Do not install the product in locations that are suspect to sudden changes in temperature. Failure to do so may cause condensation to form on the product causing malfunction.
- Even when the main monitor and sub monitor are used within 100 m of each other, obstructions can cause weak signals, noise, interrupted transmissions, distorted images and slow image refresh rates. Obstructions can include:
  - Metal doors or metal shutters.
  - Heat insulation including aluminium foil.
  - Concrete walls or walls made of galvanized iron sheet.
  - If the sub monitor is being used in a different building, or a different part of the house, i.e. a different floor to the where the main monitor has been installed.
  - Many walls.
  - Double insulated glass windows.
- Some types of hearing aids may receive noise from wireless communications between the main monitor, sub monitor and other compatible Panasonic units.
- Operating the unit near electrical appliances may cause interference. Move away from the electrical appliances.
- In areas surrounded by a high electrical field, disturbances may occur in the unit's image or sound.

2.4 Other important information

- The AC adaptor and AC cable plug are used as the main disconnect devices. Ensure that the power outlet is installed near the product and is easily accessible.

Caution:

- **Risk of explosion if battery is replaced by incorrect types. Dispose of used batteries according to the instructions.**

Tapping

This product uses digital wireless technology so that a call is rarely intercepted. However, calls may be tapped

by a third party because the product also communicates using radio waves.

- "Tapping" means that the other party intercepts a radio message intentionally or accidentally by using a receiver.

Privacy and rights of portrait

When installing or using the doorphone, please take into consideration the rights of others with regard to privacy.

- It is generally said that "privacy" means the ability of an individual or group to stop information about themselves from becoming known to people other than those whom they choose to give the information. "Rights of portrait" means the right to be safe from having your own image taken and used indiscriminately without consent.

Personal information

The main monitor's internal memory and SD cards record personal information (image and audio recordings of visitors, etc.). Panasonic assumes no liability for any unforeseen damages arising from the exposure of the recorded information.

- **Disclaimer**
  Recorded data may be altered or deleted as a result of incorrect operations, exposure to static electricity, accidents, malfunction, repairs or other operations. Panasonic assumes no liability for any direct or indirect damages resulting from the loss or alteration of recorded images.

Requesting repairs for the product

- Make sure to back up recorded data, from the main monitor's internal memory, to an SD card and then delete all recorded data from the internal memory before sending the product for repairs. After backing up the data, make sure to remove the SD card from the main monitor.
- After backing up the data, initialize the settings of the main monitor and sub monitor.*1 (All information saved to the internal memory is deleted when settings are initialized.)
  – Even if the product is sent for repairs without being initialized, the memory (including recorded data and settings) for the main monitor or sub monitor may be cleared and set to factory default after repair.
  – If operations cannot be performed due to the main monitor or sub monitor malfunction, consult with the place of purchase for appropriate action.

Note for product disposal, transfer, or return

- This product can store your private/confidential information.
  To protect your privacy/confidentiality, we recommend that you erase the information (recorded images) from the memory before you dispose of, transfer or return the product.
  All the recorded images can be erased at once by initializing the main monitor or sub monitor.*1
- Remove the SD card from the main monitor.
  – See page 9 for information about the disposal or transfer of the SD card.

*1 Main monitor: perform [Initialize settings + Delete images] in [Initialize settings]. (→ page 36)
Sub monitor: perform "Initialize". (→ page 37)

Information on Disposal in other Countries outside the European Union

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Others

- It is prohibited to disassemble or modify this product. Contact the dealer where you purchased this product for repair.
- When power fails, this product cannot be used.
- For the recorded image:
  The recorded image may be lost when:
  – Mishandled
  – Electric shock or radio wave interference occurs.
  – The power is turned off during use.
- Panasonic may not be liable for damages due to external factors such as power failures.
- If you stop using the main monitor and the doorphone, remove the main monitor and the doorphone from the walls to prevent them from falling off. (Consult your dealer for information about removing the product.)

3.1 Using SD cards (sold separately)

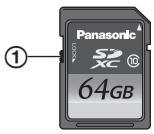
SD cards can be used with the main monitor to record images and calls from the doorphone and camera. (→ page 18)

When an SD card is not used, the main monitor's internal memory is used to save images. In this case, only doorphone images can be saved and the memory capacity is limited. We therefore recommend using an SD card to save images.

See page 41 for information about SD cards that can be used.

3.1.1 Cautions for SD cards

- The SD card indicator (→ page 10) flashes when data is being read from or written to the SD card. Do not remove the SD card, press the RESET button (→ page 10), or turn off the power to the main monitor while the SD card indicator is flashing. Failure to observe this may cause data to become corrupted.
- SD cards formatted by PCs or other devices must be formatted by the main monitor before they can be used. (→ page 40)
- When the write-protect lock switch (①) is set to "LOCK", the SD card cannot be formatted, and images and audio cannot be recorded or deleted.



- We recommend backing up important data to a PC or other device. Data on SD cards may become corrupted or be deleted if SD cards malfunction, or are exposed to electromagnetic waves or static electricity.

Disposing or transferring SD cards

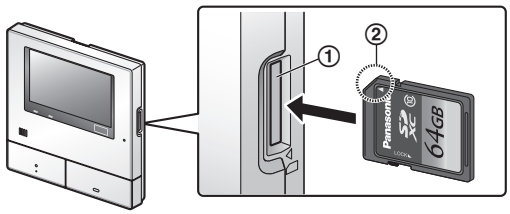
- Users are solely responsible for the managing of SD card data.
  Formatting or deleting SD cards with the main monitor, a PC or other device, only changes the file management information and does not completely delete all data stored on the SD cards. When disposing of or transferring SD cards, we recommend physically destroying SD cards or using commercially available computer software to completely delete all data in SD cards.

3.1.2 Inserting SD cards

Important:

- **Do not touch the SD card's metal contacts.**

1 After confirming that the screen of the main monitor is off, insert the SD card into the SD card slot (①).



- Insert the SD card with the notched corner (②) facing upwards until it clicks into place.
- The SD card indicator flashes and the main monitor starts to confirm the recorded image information.

2 Confirm that "The SD card is ready." is displayed on the screen.

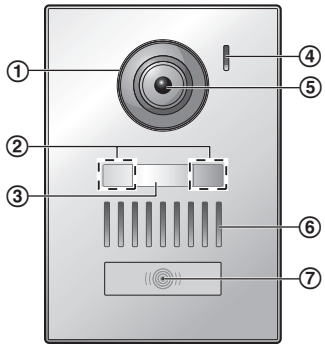
- The SD card indicator turns off and then the screen automatically turns off.

Removing SD cards

After confirming that the SD card indicator is off, push in the SD card and then remove it.

3.2 Controls

3.2.1 Doorphone



① **Lens cover**

② **LED lights** (for illumination)

③ **Name plate** (supplied accessory)

- Can be attached as required when installing the doorphone.

④ **Microphone**

⑤ **Camera lens**

⑥ **Speaker**

⑦ **Call button and indicator (red)**

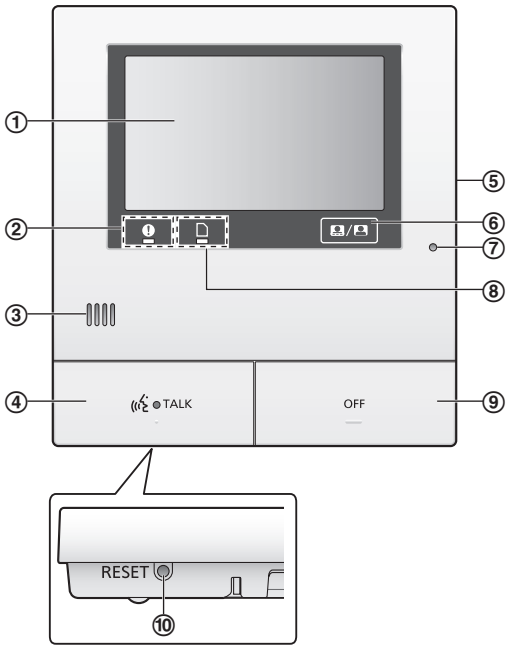
- The indicator lights in red when the power is on.

Doorphone image quality

The quality of doorphone images may change depending on factors such as the installation environment and the time when images are viewed.

See page 43 for more information.

3.2.2 Main monitor



① **Display (touch panel)** (→ page 11)

② **Notification indicator (blue)**

- Flashes when there is a notification. (→ page 12)
  - When the display is touched, the top menu is displayed and the indicator stops flashing.

③ **Speaker**

④ **Talk button and indicator (blue)**

Described in this manual as TALK.

- The indicator flashes when there is an incoming call from a doorphone or sub monitor and lights when there is a call.
- When the touch button is displayed on screen, calls can also be answered by touching this button.

⑤ **SD card slot (side panel)** (→ page 9)

⑥ Displays or hides the touch buttons and icons displayed over images.

⑦ **Microphone**

⑧ **SD card indicator (blue)**

- Flashes when data is being written to or read from an SD card. (→ page 9)

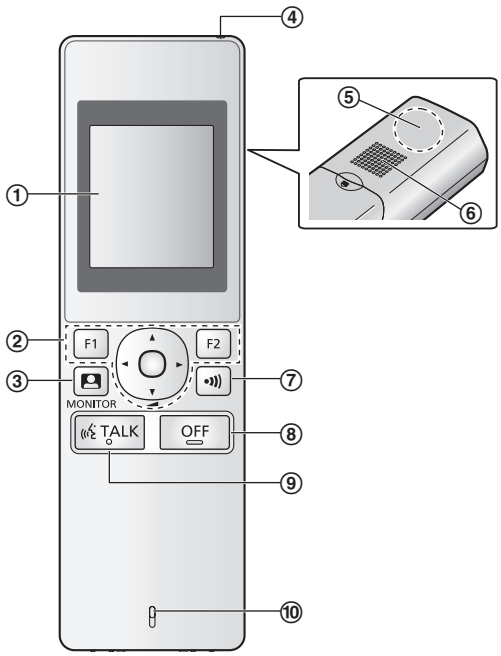
⑨ **Off button**

Described in this manual as OFF.

⑩ **Reset button**

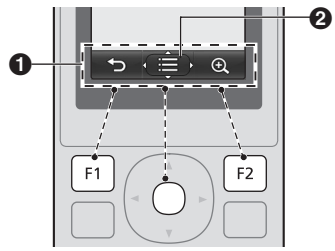
If the main monitor cannot be correctly operated, press the RESET button with a pointed object to reset the main monitor. (Recorded images and configured settings are not affected.)

3.2.3 Sub monitor



① **Display** (→ page 12)

② **Multifunction buttons**



❶ Soft key icons (→ page 13)
Displays the functions that can be operated by F1, , and F2.

❷ is displayed in screens such as the information screen (→ page 12). The arrows displayed in indicate the direction that the button can be used in.

- In the information screen, the volume can be changed by pressing up or down.

③ (monitor) (→ page 17, 23)

④ **Charge indicator** (→ page 13)

⑤ **Antenna** (built-in)
- Do not cover the antenna when using the sub monitor. (This may weaken radio waves.)

⑥ **Speaker**

⑦ (page) (→ page 16, 17)

⑧ OFF (off)

⑨ TALK (talk) (→ page 16)

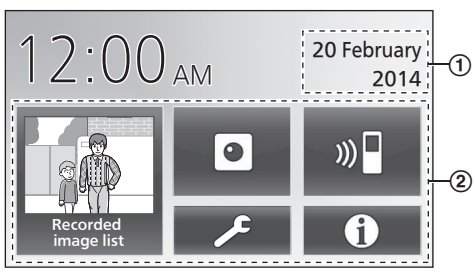
⑩ **Microphone**

3.3 Displays

3.3.1 Main monitor - touch panel and screen information

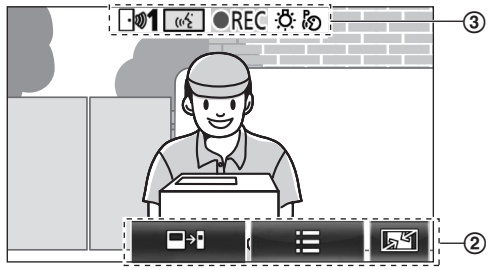
Important:
- **Only touch the display using your fingers.**
- **Do not operate the display using hard and/or pointy objects (such as ball point pens), sharp objects, or finger nails.**
- **Do not touch or press the display with excessive force.**
- **Do not use commercially available LCD display protection sheets. The touch panel may not operate correctly if protection sheets are used.**
- **When there are sudden changes to the temperature, such as when a heater or cooler is turned on, the inside of the display may appear cloudy and it may not operate correctly. In this case, wait for 1 or 2 hours before attempting to operate the display.**

Top menu



The top menu is the screen displayed when you touch the standby (black) screen. (Only displayed after the date and time settings have been configured, see page 14.)

Image viewing screen



① "Have notices" is displayed when there are notifications.
Touch [Check] to view the notification's contents.

② Touch buttons (buttons displayed in dark blue on the screen)
The touch buttons change depending on the displayed screen and actions being performed.
- Touch buttons on the screen to perform operations.
  - When a button is touched, a beep sounds and the button's colour changes to orange.
  - The sounds made by the main monitor can be turned off in the [Touch sound] settings. (→ page 36)
  - See page 11 for information about the top menu buttons.
  - See page 12 for information about the main buttons displayed in the image viewing screen.

③ Status information icons (→ page 12)

Top menu buttons

Button	Action
	Displays the recorded image list. (→ page 19) ● "New" is displayed when there are messages that have not been viewed.
	Monitors the doorphone or camera. (→ page 17, 23)
	Calls/pages the sub monitor. (→ page 17)
	Displays the settings menu. (→ page 25, 34)

Button	Action
	Displays the following information menus: ● Touch the button of the menu that you want to check. ① Displays notifications for the main monitor and camera. ② Displays the recording information (save destination, available memory, etc.). ③ Displays whether the sensors have been enabled and if the camera can be connected to.

Main buttons in the image viewing screen

Button	Action
	Answers or starts a call with the displayed visitor.
	Monitors the displayed visitor. (Sound and images can be monitored.)
	Displays menus.
	Changes the display from wide display to entire image display. (→ page 32)
	Records the displayed image. (→ page 19, 24)
	Returns to the previous screen.
	Unlocks the electric lock. (→ page 28)
	Transfers calls from the main monitor to the sub monitor. (→ page 16)

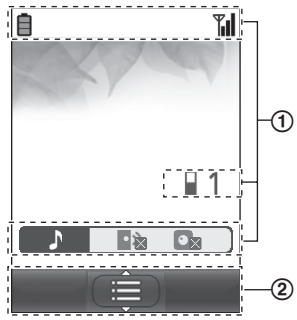
Status information icons

Icon	Meaning
	Indicates which doorphone is calling, monitoring, or on a call. ("1" indicates the device number.)
	Indicates which camera is calling, monitoring, or on a call. ("1" indicates the device number.)
	Indicates that the main monitor is on a call.
	Indicates that the main monitor is monitoring.
	Indicates that images are being recorded. (→ page 19)

Icon	Meaning
	Indicates that the doorphone's LED lights are on. (→ page 33)
	Indicates that "Press-to-talk" mode is on. (→ page 16)
	Indicates that the write-protect lock switch of this SD card is set to "LOCK", or an SD card that cannot be recorded to is inserted. (→ page 9)

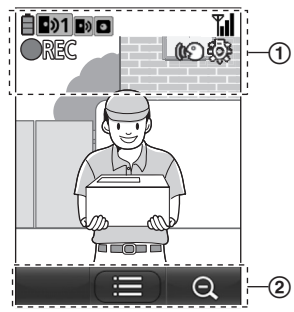
3.3.2 Sub monitor - monitor display

Information screen



The information screen is displayed when the sub monitor is taken off the charger, or F1, F2, , or OFF are pressed when the screen is off.

Talking/monitoring screen



① Status information icons

Icon	Meaning
	Battery level. (→ page 14)
	Range status: The more bars displayed, the stronger the signal between sub monitor and main monitor.
	Out of range.

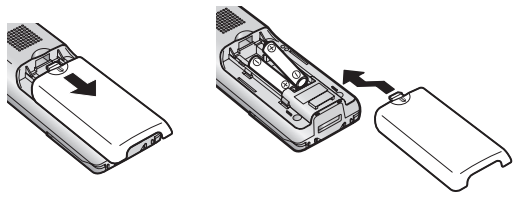
Icon	Meaning
1	Indicates the number of the sub monitor being used.
	Indicates that the doorphone's ringtone volume is muted.
	Indicates that the camera's ringtone volume is muted.
1	Indicates which doorphone is calling, monitoring, or on a call. ("1" indicates the device number.)
1	Indicates which camera is calling, monitoring, or on a call. ("1" indicates the device number.)
	Indicates there is a call from the doorphone when calling, monitoring, or on a call with another device. (→ page 31)
	Indicates there is a call from a camera when calling, monitoring, or on a call with another device. (→ page 31)
	Indicates that "Press-to-talk" mode is on. (→ page 16)
REC	Indicates that images are being recorded. (→ page 19)
	Indicates that the doorphone's LED lights are "On". (→ page 33)

② Soft key icons

Icon	Action
	Displays menus.
OK	Executes the selected item or operation.
	Returns to the previous screen.
	Unlocks the electric lock. (→ page 28)
	Changes the display to zoom display. (→ page 32)
	Changes the display to wide display. (→ page 32)

3.4 Battery installation

– USE ONLY rechargeable Ni-MH batteries AAA (R03) size.
– Do NOT use Alkaline/Manganese/Ni-Cd batteries.
– Confirm correct polarities (⊕, ⊖).



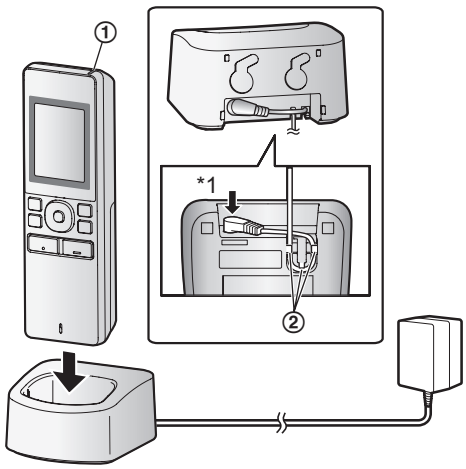
Note:

- Use the supplied rechargeable batteries (Ni-MH ONLY). For replacement, we recommend using the Panasonic rechargeable batteries noted on page 4.
- Wipe the ends of batteries (⊕, ⊖) with a dry cloth.
- Avoid touching the ends of batteries (⊕, ⊖) or the unit contacts.

3.5 Charging the sub monitor

Only connect the charger with the supplied Panasonic AC adaptor (→ page 3).

AC adaptor connections



*1 Press plug firmly.

- Connect the charger to the power outlet, and then place the sub monitor in the charger to charge it. Charging usually takes about 8 hours.
  ① Charge indicator
  – when charging: lights
  – when charging is completed: off
  ② Hook
- Charging may take longer in the following situations.
  – When the operating temperature is low. (→ page 42)
  – When the sub monitor is picked up off the charger or used during charging.
  – When the sub monitor's signal is out of range ( ). (→ page 12)
- The sub monitor does not overcharge even if it is continuously placed in the charger.

Battery level

Icon	Battery level
	High
	Medium
	Low
	Needs charging

- See page 42 for a guide on operating times for the sub monitor.

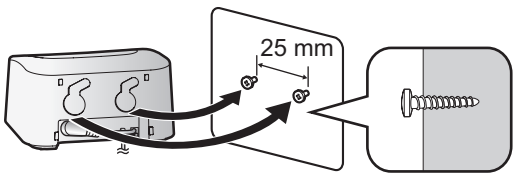
Note:

- When the sub monitor is off the charger or the AC adaptor is disconnected for 1 week or more, remove the batteries in order to maintain battery performance and prevent the batteries from discharging.
  - Recharge the batteries before using the sub monitor again.

3.6 Wall mounting

Note:

- Make sure that the wall and the fixing method are strong enough to support the weight of the unit.
- Drive the screws (locally procured) into the wall.



3.7 Setting the date and time

– This operation can only be performed on the main monitor.

A date and time setting screen is displayed when the main monitor is first used. Follow the steps below to configure the date and time. (The notification indicator flashes when these settings have not been configured.)

1 Configure the date and time by touching [+] and [–].

2 Touch [OK] to complete the settings.
- A beep sounds and the screen turns off.

Changing the date and time

The date and time can be changed from the settings button in the top menu. (→ page 34)

Note:

- The date and time settings may be deleted when there is a power outage. In this case, reconfigure the settings.
- The time may get out of sync by about 60 seconds a month.

3.8 Wide/zoom settings and zoom position settings

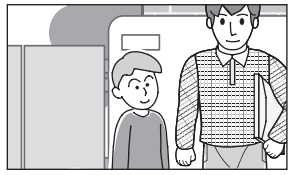
– This operation can only be performed on the main monitor.

You can configure how doorphone images are initially displayed on the main monitor and sub monitor.

Wide/zoom settings

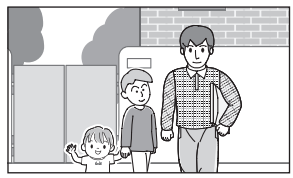
From the following 3 settings, you can select how images are initially displayed when visitors come or when monitoring.

Zoom display*1

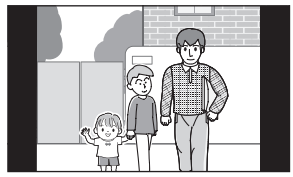


(images are zoomed in on 2 times more that in wide display)

Wide display*2 (default setting)



Entire image display (main monitor only)



*1 Because a digital zoom is used, image quality is lower when compared to images in wide display or entire image display.

*2 The top and bottom parts of wide display images on the main monitor are cut off when compared to images in entire image display.

Zoom position settings

You can configure which parts of images are zoomed in on when displaying zoomed images. Adjust the position so that the people or objects that you want to view are displayed centrally in the screen.

Settings:

1. From the top menu, touch → → [Initial settings].
2. **Configuring wide/zoom settings:**

   ① Touch [Wide/Zoom settings] and then select the doorphone to be configured.

   ② Touch [When visitors come] or [When monitoring], and then select the display method (Zoom, Wide, or All).
   - A beep sounds and the settings are changed.

   ③ To end the operation, press OFF.

   Configuring zoom position settings:

   ① [Zoom position settings] → select the doorphone to be configured.
   (The current doorphone image is displayed in the wide display.)

   ② Touch the position that you want to be zoomed in on, and then touch [OK] after confirming the selected position.
   - A beep sounds, "Configured" is displayed, and then the screen automatically turns off.

Note:

- When [Zoom] is selected for [Wide/Zoom settings]:
  - Adjust the zoom position so that people or objects that you want to view are displayed centrally in the screen. (→ page 14)
  - When images are recorded, only the areas displayed when zooming are recorded.
- The zoom position screen automatically turns off if settings are not completed in about 90 seconds. In this case, settings are not saved and must be redone.

4.1 Answering calls

– This operation is the same for the main monitor and sub monitor.

When you receive a call from a doorphone, the main monitor and sub monitor ring and display an image from the doorphone. You can answer calls with the following operations.

1 Press TALK and talk to the visitor.

- Speak alternatively with the visitor (staying within about 50 cm from the microphone).
  - – If you and the visitor speak at the same time, you will not hear each other.
  - – Talking time: up to about 90 seconds.

2 To end the operation, press OFF.

Features available while talking or when there is an incoming call

– Monitor visitors (incoming call only)

: Touch .

: Press .

– Adjust wide/zoom and pan/tilt settings (→ page 32)
– Adjust sound and display settings (→ page 32)
– Talk using "Press-to-Talk" (→ page 16)
– Transfer calls (→ page 16)
– Unlock electric locks (→ page 28)

Note:

- The display will turn off if you do not answer a call within about 30 seconds.
- Incoming call images are automatically recorded to the main monitor. (→ page 19)

4.1.1 Press-to-talk mode

If it is difficult for you or the visitor to hear each other due to noise, the "Press-to-talk" mode can be used to make conversations easier to hear. Speak with the visitor alternately by pressing TALK to switch between the talking mode and the receiving mode. (You can operate this feature in the same way by using either the main monitor or the sub monitor.)

1 Press and hold TALK for about 2 seconds during a call until a beep sounds.

- (or) is displayed on the screen.

2 **To speak to the visitor:**

Speak while pressing and holding TALK.

To hear the visitor:

Release TALK.

Note:

- "Press-to-talk" mode is cancelled after the call ends.

4.2 Transferring doorphone calls

You can transfer a doorphone call between the main monitor and the sub monitor.

- When using multiple sub monitors, you can transfer a doorphone call between the sub monitors.

To transfer calls

1. : While talking to the visitor at the doorphone, touch .

- When there are multiple devices that can be selected, select the device. To page all devices, touch [Call all together].

: While talking to the visitor at the doorphone, press .

- When there are multiple devices that can be selected:

: Select the device.*1 → (OK)

*1 To page all devices, select "Call all together".

2. Page the other party.

3. When the paged party answers, ask them to receive the call from the doorphone. Perform the following to transfer the call to the paged party.

: Touch [Transfer to sub monitor].

: Press OFF.

To receive calls

– This operation is the same for the main monitor and sub monitor.

1. When the intercom call is received, press TALK to talk to the paging party.

2. When the image from the doorphone is displayed, talk to the visitor.

3. To end the operation, press OFF.

Note:

- The visitor cannot hear voices during paging.

- To talk to the visitor if the paged party does not answer:

  : Touch [Talk to visitor].

  : Press TALK.

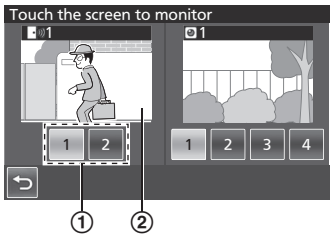
4.3 Monitoring the outside with the doorphone

You can monitor the sounds and images from the doorphone.

1 : From the top menu, touch .

- When there are multiple devices displayed, touch the number of the doorphone that you want to monitor with (①) and then the image (②).

Example: When there are both doorphones and cameras.



: Press .

- When there are multiple devices displayed:

  : Select the destination. → (OK)

2 The images from the doorphone are displayed.

- Press TALK to speak to the monitored party.

3 To end the operation, press OFF.

Features available while monitoring

– Adjust wide/zoom and pan/tilt settings (→ page 32)
– Adjust sound and display settings (→ page 32)
– Record monitored images (→ page 19)

Note:

- The sound from your end will not be heard at the doorphone.
- Monitoring time:

  : About 90 seconds (can be extended up to 3 minutes by performing operations during monitoring)

  : About 3 minutes

4.4 Talking between the main monitor and the sub monitor

Intercom calls between the main monitor and the sub monitor can be made.

– When using multiple sub monitors, you can make intercom calls between the sub monitors.

To make calls

1. : From the top menu, touch .

- When there are multiple devices that can be selected, select the device. To call all devices, touch [Call all together].

  : Press .

- When there are multiple devices that can be selected:

  : Select the device.*1 → (OK)

  *1 To call all devices, select "Call all together".

2. Page the other party.

3. Talk with the paged party when they answer the call.

4. To end the operation, press OFF.

To receive calls

– This operation is the same for the main monitor and sub monitor.

1. When the intercom call is received, press TALK to talk to the paging party.

Note:

- Paging automatically ends after about 30 seconds and intercom calls automatically end after about 90 seconds.

5.1 Image and audio recording

The amount of audio and image content that can be recorded depends on the where the content is being saved (internal memory or SD card).
In order to enjoy the full capabilities of the product, we recommend using an SD card for the save destination.

– When an SD card is inserted into the main monitor, it automatically becomes the default save destination. (The save destination cannot be selected.)
– See page 9 for information about supported SD cards and how they are used.

Save destination		**SD card (2 GB - 64 GB)**		**Internal memory (when an SD card is not inserted)**
Maximum number of images		3,000*1		50
Recorded image type		Doorphone images and calls (→ page 19)	Camera images and calls (→ page 24)	Doorphone images only (→ page 19)
Content of each recording	**Incoming call recordings (automatic recording)**	Video: max of approx. 30 seconds	Series of images recorded at 1 second intervals and audio: max of approx. 30 seconds	Still images: max of 8
	Monitor recordings (manual recording)			
	Talk recordings	Video and audio: max of approx. 90 seconds*2	Series of images recorded at 1 second intervals and audio: max of approx. 90 seconds*2	Cannot record

*1 Differs depending on the capacity of the SD card. See page 18 for a guide to the capacity and number of images that can be recorded with SD cards.
*2 See page 35 for audio recording settings in [Record calls] for the doorphone and camera.

Note:

- Recorded images from the internal memory can be copied to SD cards. (→ page 40)
- Images recorded on SD cards can be played on a PC. (→ page 40)

Guide for SD card capacity and recording

The following table gives an approximate guide to the number of images that can be recorded, based on which device took the images and the size of the SD card used, when the default settings are used ([Record calls] is set to [Disable] (→ page 35)).

Unit: number of recorded images

	Capacity	**2 GB**	**4 GB**	**8 GB**	**16 GB**	**32 GB**	**48 GB**	**64 GB**
Recorded image type	**Doorphone images only**	125	255	520	1,040	2,090	3,000	3,000
	Camera images only	2,300	3,000	3,000	3,000	3,000	3,000	3,000

Note:

- When using a camera, we recommend using an SD card with a capacity of 4 GB or more.
- The number of images that can be recorded in the table are just a guide and may differ from the actual number of images that can be recorded.
- Because SD cards contain data such as file system management information, the complete capacity cannot be used to save data. When other data is saved to an SD card, the number of images and videos that can be saved is reduced.

5.2 Recording doorphone images and conversations

5.2.1 Automatically recording incoming call images

When there is an incoming call, regardless of whether you answer the call or not, images are automatically recorded about 2 seconds after receiving the call. (See page 18 for information about the recorded contents.)

When calls are not answered:

Recorded images are saved as unchecked images, and the notification indicator of the main monitor flashes.

Note:

- When there is an incoming call from another doorphone when talking or monitoring with a doorphone (→ page 29), you must end the call or monitoring in order to display and save the image from the incoming call.
- When there are multiple doorphones and there is an incoming call from another doorphone, while receiving an incoming call, the number of recorded images (8 images), and the length of recorded videos (about 30 seconds), are reduced.

When the internal memory or SD card's memory is full (auto image updating)

When the memory is full, it is not necessary to manually delete images in order to record new messages because existing images, starting with the oldest image, are automatically deleted.

– Images that have not been viewed are also deleted.
– See page 12 for information about checking the recording status of the internal memory or SD card.

5.2.2 Record images and audio until the end of calls (Record calls)

To use this function, an SD card must be in the main monitor and [Record calls] must be appropriately configured (→ page 35).
In this case, when calls from a doorphone are answered, the calls can be recorded from start to finish in 1 video file that includes audio data. (The maximum length of the video is about 120 seconds.)

5.2.3 Manually recording monitored images

Monitored images can be manually recorded with the main monitor and sub monitor. (See page 18 for information about the recorded contents.)
Images monitored with the camera can also be recorded with the same operations.

1 Perform the following operations when monitored images are displayed.

- ● REC is displayed on the screen when recording.

: Touch REC .

: ( ) → : "Record" → (OK)

Note:

- When recording images with the sub monitor, because there is a lag from when operations are performed to when recording actually starts, there may be a difference between the contents of the monitored images and the recorded images.

5.3 Playing recorded images (main monitor only)

When there are recently recorded images that have not been viewed, the notification indicator flashes and "New" is displayed.

1 From the top menu, touch [Recorded image list].

- A list of recorded images for each day is displayed in a 1 week calendar.
  – To view a recorded image list from another day, touch the button of the desired date. This will show all recorded images from that day.
  – Touch to view a list of camera recorded images.
  – See page 20 and 21 for information about how to navigate this screen and play images.

2 Touch the image that you want to view.

- Touch to view all of the images after the selected date.

3 To end the operation, press OFF .

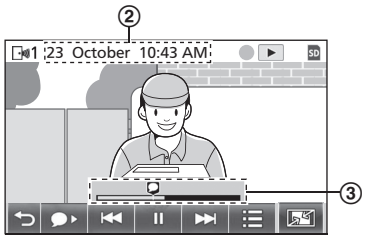
Note:

- The notification indicator stops flashing when the top menu is displayed, and "New" in the top menu disappears from the display when the recorded image list screen is displayed.

5.3.1 Navigating the recorded image list and image playing screens

Recorded image list screen

Image playing screen



① The recording device's number

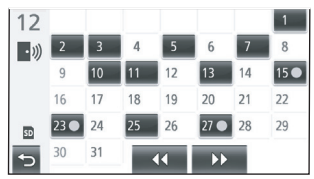
② Recording date and time

③ Time that the image has been played for

Display and other icons

Icon	Meaning
	Indicates that there is an image that has not been viewed, and which images have not been viewed.
	Displayed when images from a doorphone are displayed. When images from a camera are displayed, or is displayed.
	Indicates that an image recorded on the SD card is being displayed or played.
	Indicates there is recorded audio (displayed at the start position of recorded calls in the playback screen).
	Displayed when playing images.
	Displayed when images being played are paused.
	Displayed when the audio is muted. (→ page 21)
	Displayed when the write-protect lock switch of the SD card is set to "LOCK". (→ page 9)

Operation buttons in the recorded image list screen

Button	Action
	Go to the previous or next week.
	Go to the previous or next page (only displayed when there are 7 or more recorded images).
	Switches the memory (internal memory or SD card) that recorded images are displayed from.
	Goes to the doorphone's image list.
	Goes to the camera's image list.
	Plays images from the selected date and all images recorded after that date.
	Deletes all images from the selected day. ● To delete: Touch → confirm the message and then touch [Yes].
	Allows you to search for images using the calendar (this is convenient for searching for an image when there are many recorded images). ● When touched, a calendar such as the following is displayed. Touch the date button of the images that you want to view. 

Operation buttons in the playing screen

Button	Action
	Skips to the next or previous image.
	Pauses images.
	When audio is recorded with an image, audio is played from the start of recorded calls.
	Returns to the recorded image list screen.
	Allows you to delete images, and adjust the brightness and volume. (→ page 21)

Button	Action
/ /	Switches between wide, entire image, and zoom displays. (→ page 32) ● The display can also be zoomed by touching an image.
	Plays paused images.
/	Skips to the next or previous frame (image).

5.3.2 Menu button functions when playing images

The following operations can be performed by using the button displayed when playing images.

Deleting individual images:

Images can be deleted 1 image at a time.

- Touch [Delete], check the displayed message and then touch [Yes].

Changing the screen's brightness:

- Touch [Brightness], and then adjust the brightness by touching [–] (Darker) or [+] (Brighter).

Changing the volume of played images:

The volume can be changed when playing the images.

- Touch [Volume], and then adjust the volume by touching [–] (Quieter) or [+] (Louder).
  - To mute the audio, touch [–] until is displayed.

Note:

- The [Delete all images] setting can be used to delete all images in the save destination (internal memory or SD card) in a single operation. (→ page 35)

6.1 Connecting with a camera

By connecting with a camera (additional accessories, → page 4), you can monitor outside images with the camera, and the main monitor and sub monitor can receive notifications with sounds and images when camera sensors are triggered.

– See the camera's manuals for detailed information about using the camera.
– An SD card is required to record camera images.

Note:

- The image quality of camera images may be lower than the image quality of doorphone images.

6.1.1 Registering a camera to the main monitor

Register the camera after connecting it to a power supply.

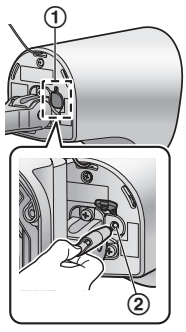
– Register 1 camera at a time. Multiple cameras cannot be registered at the same time.
– These operations are for VL-WD812BX model cameras. See the camera's manuals as required.

1 : From the top menu, touch → → [Register/Cancel] → [Register] → [Camera] → the number of the camera to be registered.

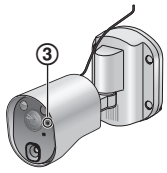
- After this, use the camera and complete the following steps within about 5 minutes.

2 : With the power connected to the camera, press the register button on the rear side of the camera.

- The register button is located behind the register button cover (①). Peel open the register button cover and use the thin end of the sensor range cap removement tool (supplied accessory) to press and hold the register button (②) for about 3 seconds. After this make sure to firmly close the register button cover.



- The camera's indicator lamp (③) flashes in green during registration. When registration is complete, a beep sounds and the indicator lamp lights in green.



3 : To end the operation, press OFF.

6.1.2 Images sent from the camera

Camera image recording intervals

The camera records images (series of images) and sends them to the main monitor. The main monitor and sub monitor display the images by continuously updating still images one image at a time. (Video data is not sent from the camera.)

Images recorded due to sensor detections

The timing that the 1st image is recorded changes depending on whether [Recording before detection] (→ page 26) is set to [1 second before] or [2 seconds before].

	Recording from 1 second before detection	**Recording from 2 seconds before detection**
	↓	
1st image	1 second before detection	2 seconds before detection
	↓	
2nd image	Just after detection	
	↓	
3rd image	1 second after detection	
	↓	
4th image	2 seconds after detection	
	↓	
5th image	Approx. 4 to 5 seconds after detection	

- Images from the 6th image onwards are recorded in approx. 1 second intervals.
- The following issues may occur when it is dark.
  – The first image is dark. (The LED lights are not lit because no detections have been made yet.)
  – Objects in images may appear blurred.

Images recorded when monitoring

Images are recorded in approx. 1 second intervals from when monitoring is started.

6.2 Monitoring the outside with the camera

You can monitor the sounds and images from the camera.

– The sound from your end will not be heard at the camera.

1 : From the top menu, touch and then the image.

- If the camera selection screen is displayed, touch the number of the camera that you want to monitor with and then the image.

: → : Select the camera you want to monitor with. → (OK)

2 The images from the camera are displayed.

- Press TALK to speak to the monitored party.

3 To end the operation, press OFF.

Features available while monitoring

– Adjust wide/zoom and pan/tilt settings (→ page 32)
– Adjust sound and display settings (→ page 32)
– Make a warning sound come out of the camera (→ page 23)
– Record monitored images (→ page 19)

Note:

- Monitoring time:
  – : About 90 seconds (can be extended up to 3 minutes by performing operations during monitoring)
  – : About 3 minutes
- In situations where it is difficult to see images, such as when it is dark or when there is backlight, change the camera's [Brightness] setting and activate the [Backlight compensation] setting as required. (→ page 26)

6.3 When camera sensors are triggered

When a camera sensor is triggered, the main monitor and sub monitor are notified in the follow manner.

1 When a sensor is triggered the ringtone sounds and camera images are displayed for about 30 seconds.

- **Talking to the other party at the camera side:**
  Press TALK.
- **Monitoring (watching and listening) the other party without talking:**
  : Touch .
  – The monitoring time is about 90 seconds (can be extended up to 3 minutes by performing operations during monitoring).
  : Press .
  – The monitoring time is about 3 minutes.
- **Making a warning sound come out of the camera:**
  : Touch → [Warning sound] → [Play sound].
  : ( ) → : "Warning" → (OK)

Features available when a sensor is triggered

– Adjust wide/zoom and pan/tilt settings (→ page 32)
– Adjust brightness settings (→ page 33)
– Record monitored images (→ page 19)

Note:

- Images from when camera sensors are triggered are automatically recorded to the SD card. (→ page 24)
- Once a sensor is triggered, the next sensor detection cannot be made until about 10 seconds after the first triggered images have finished being displayed. (The time that detections are not made for can be selected. → page 25)
- In situations where it is difficult to see images, such as when it is dark or when there is backlight, change the camera's [Brightness] setting and activate the [Backlight compensation] setting as required. (→ page 26)
- The volume and the types of sounds used by the [Warning sound] setting can be changed. (→ page 27)

6.4 Turning off camera sensor detections for specified periods of time (main monitor only)

Camera sensor detections can be turned off for specified periods of times as required.

– When camera sensor detections are turned off, notifications are not sent to the main monitor and sub monitor and images are not automatically recorded.
– When there are multiple cameras, sensor detections for all of the cameras will be turned off.

1 From the top menu, touch → On Off.

2 Touch the time you want to turn off sensor detection for.
- A beep sounds and "Off" is highlighted in yellow when settings are completed.

3 To end the operation, press OFF.

Turning sensor detection back on again

When sensor detection is turned off, it will automatically turn on again after the specified time has passed. You can turn on the sensor detection again at any time with the following operations.

1. From the top menu, touch →

to turn the sensor detection on again.

2. To end the operation, press OFF.

Note:
- The status of camera sensor detections can be checked in the camera information menu. (→ page 12)

6.5 Recording camera images and conversations

Camera images with audio data can be recorded to an SD card. (Including doorphone images, a maximum of 3,000 images can be saved.)

6.5.1 Automatically recording images when sensors are triggered

When a sensor is triggered, images from 1 or 2 seconds*1 before the detection are automatically recorded*2 to an SD card. (→ page 18)

*1 The timing when recording starts before detections depends on the [Recording before detection] setting. (→ page 26)

*2 When a call is made after a sensor is triggered, audio from the main monitor or sub monitor will also be recorded.

When calls are not answered:

Recorded images are saved as unchecked images, and the notification indicator of the main monitor flashes to indicate that there are unchecked images.

Note:
- When there are multiple cameras, multiple incoming calls may be received at the same time. In this case, the most recent incoming call is given priority and recorded.
- When there is an incoming call from another camera when talking or monitoring with a camera (→ page 29, 30), you must end the call or monitoring in order to display and save the image from the incoming call.
- When there are multiple cameras, and another camera's sensor is triggered whilst receiving an incoming call, the recording time of camera images (about 30 seconds maximum) may be reduced.

6.5.2 Recording images and audio until the end of calls (Record calls)

To use this function, an SD card must be inserted in the main monitor and [Record calls] must be set to [Enable] (→ page 35). With this function, calls can be recorded from start to finish in 1 video file that contains audio data (max. length of about 120 seconds).

6.5.3 Manually recording monitored images and playing recorded images

The operations are the same for doorphone images.
- Manually recording monitored images. (→ page 19)
- Playing recorded images. (→ page 19)

6.6 Changing camera settings

You can change the settings to match how the camera is used.

How to change the settings (using the main monitor)

1. From the top menu of the main monitor, touch → → [Connected devices] → [Camera].
2. Select the number (1 - 4) of the camera to be configured.
3. Touch the item name, function name, and setting contents.
   - Operations may have to be repeated depending on the function.
4. To end the operation, press OFF.

Note:

- The setting function screen automatically quits if an incoming call is received or if no operations are performed for about 90 seconds.
- In the following table, **< >** indicates the default settings.

Item name: Sensor settings

Function name	Setting contents and other information
Sensor selection	Heat sensor only, **<Heat sensor + motion detection>**, External sensor only, All sensors, Off (disables all sensors)
Heat sensor detection*1	**<Night only>**, Always ● Select the time period for heat sensor detection. – When [Night only] is selected, the heat sensor operates according to the settings of [Day and night switch] (→ page 25).
Motion detection*1	Day only, **<Always>** ● Select the time period for motion detection. – When [Day only] is selected, motion detection operates according to the settings of [Day and night switch] (→ page 25).
Day and night switch	**<Auto>**, Timer ● Select whether to automatically set the day and night switch settings or set them manually to a preferred time. – This setting is active when the [Heat sensor detection] or [Motion detection] settings are set to [Night only] or [Day only]. Auto: the camera automatically switches between night and day modes depending on the brightness of the surrounding area. Timer: allows you to configure the time for the night. (After selecting [Timer], set the time with [+] and [–], and then touch [OK].)
Time with no detection	**<10 seconds>**, 30 seconds, 60 seconds ● Select the time after an image is detected by a sensor or a monitored image is displayed until the sensor can make detections again. – Select a long time period if you do not want the sensor to make frequent detections.
Heat sensor sensitivity	High sensitivity, **<Normal>**, Low sensitivity, Very low sensitivity, Do not detect ● If it is difficult for the sensor to make detections, select [High sensitivity]. If detections are being too frequently made, select [Low sensitivity] or [Very low sensitivity].
Motion detection sensitivity	High sensitivity, **<Normal>**, Low sensitivity, Very low sensitivity ● If you want to detect small changes in motion, select [High sensitivity]. If you do not want to detect small changes in motion, select [Low sensitivity] or [Very low sensitivity].

Function name	Setting contents and other information
Motion detection range	● Select the range (area) of motion detection. – By setting the areas that you do not want motion to be detected in to X, you can narrow down the areas that motion can be detected in. **Configuration** **1.** Touch areas that you do not want motion to be detected in so that X is displayed on those areas. (Touch again to remove X.) **2.** Touch [Configure].
Recording before detection	**<1 second before>**, 2 seconds before ● Select to start recording 1 or 2 seconds before a sensor detection is made. See page 22 for information about recording intervals and sensor detection recordings.
Check sensors	Heat sensor, Motion detection, External sensor ● You can check the operations of each sensor when setting the camera, or at any other time. – Select the type of sensor that you want to check, trigger it, and then confirm if detections were correctly made. (See the Installation Guide for the camera for information about how to check the sensors.)
Recording test	● Confirm if images are correctly recorded before and after images are recorded for sensor detections. (See the Installation Guide for the camera for more information.)
External sensor	**<Make contact>**, Break contact ● When using commercially available external sensors, select the type of contact points used by the sensor. – Select the type of contact point according to the external sensor used and its function.

*1 When [Day and night switch] is set to [Timer], the configured time periods are displayed above the [Night only] and [Day only] setting buttons.

Item name: Screen settings

Function name	Setting contents and other information
Brightness	-3, -2, -1, **<0>**, +1, +2, +3 ● Adjust the brightness of camera images. (The higher you set the brightness, the brighter the image.) – Make adjustments when the images are very dark or bright.
Backlight compensation	On, **<Off>** ● When [On] is selected, backlight compensation is performed. However, depending on the background of the subject, the backlight compensation may not be effective.
Automatic illumination	When the sensor is triggered: Enable, **<Only when dark>**, Disable When monitoring: Enable, **<Only when dark>**, Disable
Uneven colour prevention	On, **<Off>** ● Normally use this setting set to [Off]. Only set this setting to [On] if the colour in camera images is uneven. (When set to [On], the image quality may be reduced when it is dark.)

Item name: Sound settings

Function name	Setting contents and other information
Sensor trigger sound	Sound type: **<Sound a>**, Sound b, Sound c Volume: **<Loud>**, Normal, Quiet, Mute ● Select the type and volume of the sound to be made by the camera when there is a sensor detection.

Function name	Setting contents and other information
Warning sound	Sound type: **<Sound a>**, Sound b, Sound c Volume: **<Loud>**, Normal, Quiet ● By operating the main monitor or sub monitor when monitoring or performing other actions, you can make a warning sound come out of the camera. Select the type and volume of the sound.
Owner's voice volume	Loud, **<Normal>**, Quiet ● Select the volume of the sound from the camera when talking or calling out to visitors.
Camera mic sensitivity	**<High>**, Normal, Low ● When too much sound is picked up, select [Normal] or [Low].

Item name: Other settings

Function name	Setting contents and other information
Indicator lamp	**<Always>**, When transmitting, Off ● Select how the indicator lamp lights up. – When [When transmitting] is selected, the lamp only lights up when the main monitor or sub monitor are talking or monitoring with the camera.
Camera detection history	● Displays the sensor detection history. (Displays the latest 24 entries.)
Initialize settings	Yes, No ● Returns the camera's settings to the factory default. – The camera remains registered to the main monitor even if the camera's settings are initialized. (Registration information is not deleted.)

7.1 Connecting with electric locks

When a commercially available electric lock is connected to the main monitor, you can open a door using the main monitor or the sub monitor. You can also select how long the door remains open.

To use electric locks, they must be configured on the main monitor.

- A maximum of 2 electric locks can be connected to the main monitor.
- For detailed information about connections, see the manual included with the electric lock and the Installation Guide of this product.

7.1.1 Configuring electric locks

– This operation can only be performed on the main monitor.

1 From the top menu, touch → →

[Connected devices] → [Electric lock] → the doorphone to be configured.

- [Unlocking buzzer sound] can also be configured. (→ page 35)

2 Touch the electric lock to be configured and then touch the unlocking time.

3 To end the operation, press OFF.

7.1.2 Unlocking electric locks

1 When talking or monitoring with the doorphone:

: Touch .

: F1 ( )

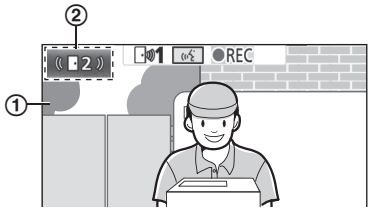
Note:

- You can only open the door when talking or monitoring.
- When using electric locks with different doorphones: You can only open the electric lock from the doorphone that it is linked to.

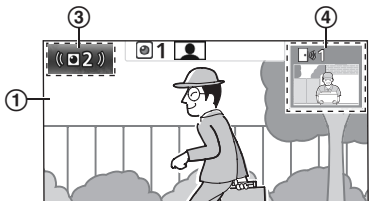
8.1 When another incoming call is received - main monitor

When another incoming call is received from a doorphone or camera while talking, monitoring, or receiving an incoming call with the main monitor, the ringtone sounds and notifications are received in the following manner.

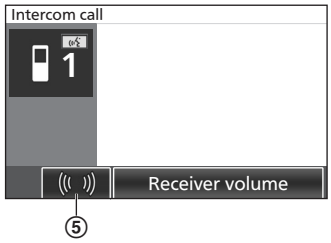
Example: When there is an incoming call from doorphone 2 while talking with doorphone 1.



Example: When there are incoming calls from doorphone 1 and camera 2 while monitoring with camera 1.



Example: When there is an incoming call from a doorphone or camera during intercom calls.



① Main screen

② Doorphone button indicating that there is a new incoming call (the example shows an incoming call from doorphone 2)

– By touching this button, you can display the image from the incoming call in the main screen.

③ Camera button indicating that there is a new incoming call (the example shows an incoming call from camera 2)

– By touching this button, you can display the image from the incoming call in the main screen.

④ Sub screen indicating that there is a new incoming call (the example shows an incoming call from doorphone 1)

– By touching the sub screen, you can display the image from the sub screen in the main screen.

⑤ Incoming call notification button

Current action	New incoming call from	Next action
Receiving an incoming call from a doorphone	Doorphone	The display changes to the new incoming call, and the previous incoming call is terminated.
	Camera	The existing incoming call from the doorphone is displayed in the main screen and the new incoming call from the camera is displayed in the sub screen[*1]. ● By touching the sub screen, you can switch the images displayed in the main screen and sub screen.
Talking or monitoring with a doorphone	Doorphone	The number of the doorphone that the incoming call is from is displayed in the touch button (②). ● When ② is touched, the display changes to the new incoming call and the existing call or monitoring is terminated.
	Camera	The incoming call from the camera is displayed in the sub screen[*1]. ● When talking with the doorphone: – By touching the sub screen, you can switch the images displayed in the main screen and sub screen. (You can continue talking with the original call when images are switched.) ● When monitoring with the doorphone: – When the sub screen is touched, the display changes to the new incoming call from the camera and the existing monitoring is terminated.

Current action	New incoming call from	Next action
Receiving an incoming call from a camera	Doorphone	The existing incoming call from the camera is displayed in the sub screen and the new incoming call from the doorphone is displayed in the main screen. ● By touching the sub screen, you can switch the images displayed in the main screen and sub screen.
	Camera	The display changes to the new incoming call, and the previous incoming call is terminated.
Talking or monitoring with a camera	Doorphone	The incoming call from the doorphone is displayed in the sub screen (④). ● When talking with the camera: – By touching ④, you can switch the images displayed in the main screen and sub screen. (You can continue talking with the original call when images are switched.) ● When monitoring with the camera: – When ④ is touched, the display changes to the new incoming call from the doorphone and the existing monitoring is terminated.
	Camera	The incoming call can be displayed by touching the camera button (③)*2. ● When ③ is touched, the display changes to the new incoming call and the existing call or monitoring is terminated.
Transferring doorphone calls	Doorphone	The incoming call notification button (⑤) is displayed. ● When ⑤ is touched, transferring is cancelled and the screen is returned to the original doorphone screen. The number of the doorphone that the incoming call is from is displayed in a touch button such as ②. ● When ② is touched, the display changes to the new incoming call and the existing call or monitoring is terminated.
	Camera	The incoming call notification button (⑤) is displayed. ● When ⑤ is touched, transferring is cancelled and the screen is returned to the original doorphone screen. The incoming camera call is displayed in the sub screen*1. ● By touching the sub screen, you can switch the images displayed in the main screen and sub screen. (You can continue talking with the original call when images are switched.)
During an intercom call	Doorphone or camera	The incoming call notification button (⑤) is displayed. ● When ⑤ is touched, the display changes to the new incoming call and the existing intercom call is terminated.

*1 When multiple incoming camera calls are received, the most recent incoming call received is given priority and is displayed in the sub screen.

*2 When multiple incoming camera calls are received, the most recent incoming call received is given priority and is shown in the camera button.

Note:

- The sub screen display can be turned off by touching [/].

8.2 When another incoming call is received - sub monitor

When another incoming call is received from the doorphone or camera while talking, monitoring, or receiving an incoming call with the sub monitor, notifications are received in the following manner.

Current action	New incoming call from	Next action
Receiving an incoming call from a doorphone or camera	Doorphone or camera	The doorphone's or camera's ringtone sounds, and TALK or flashes. (See page 12 for information about the display.) ● When multiple doorphone incoming calls are received, the original incoming call is terminated, and the new incoming call is given priority and is displayed. ● When an incoming call from both the doorphone and camera are received, the doorphone's incoming call is given priority and is displayed. ● When multiple camera incoming calls are received, the original incoming call is terminated, and the new incoming call is given priority and is displayed. To talk to the visitor at the doorphone: ● Press TALK. To monitor with the doorphone or camera: ● → : Select the device. → (OK)
Talking or monitoring with a doorphone or camera, or during an intercom call	Doorphone or camera	The doorphone's or camera's ringtone sounds and the icon of the incoming call's device is displayed. (See page 12 for information about the display.) To answer the incoming call: ● Press OFF. – The original call or monitoring is terminated and the displayed image is changed. – Press TALK to talk with the visitor at the doorphone or camera.

9.1 Changing how images are displayed (wide/zoom and pan/tilt settings)

When displaying doorphone and camera images, the display can be changed between wide and zoom displays, and the zoom position can be changed using pan and tilt operations.

Operation		
Wide → zoom	Touch the position that you want to enlarge.	F2 ( )
Entire image display → zoom		–
Zoom → wide		F2 ( )
Entire image display → wide		–
Wide → entire image display		–
Pan/tilt	Touch the position that you want to view.	

– See page 14 for an image of what the wide, zoom, and entire image displays look like.

Note:

- Because a digital zoom is used, the image quality of zoom display is lower than that of wide display or entire image display.
- When images are recorded in zoom display, only the areas displayed are recorded.
- When using the main monitor, pan and tilt, wide, zoom, and entire image display operations can be performed even when playing recorded images.
- Even if the display is changed, it will go back to the configured settings when the next image is displayed.
  - To change how incoming doorphone calls and monitored images are initially displayed, change the [Wide/Zoom settings] or [Zoom position settings] settings. (→ page 14)
  - Incoming call images, monitored images, and recorded images from the camera can only initially be displayed in the wide display.

9.2 Audio and display settings for talking and monitoring

The following audio and display settings can be configured for talking and monitoring with doorphones and cameras.

Status	Sound settings that can be changed	Display settings that can be changed
Talking or monitoring with a doorphone	• Receiving volume of incoming calls • Owner's voice volume (output to the doorphone)*1 • Voice changer function (makes the voice output to the doorphone sound deeper)	• Doorphone LED lights' illumination (manually ON/OFF)*2 • Doorphone backlight compensation*2 • Brightness settings*2
Talking or monitoring with a camera	• Receiving volume of incoming calls	• Brightness settings*3

*1 This is the volume that can be heard outside at the doorphone when talking with the doorphone. (This setting can only be changed by the main monitor.)
*2 Can also be changed when there is an incoming call from the doorphone.
*3 Can also be changed when there is an incoming call from the camera.

Configuration (Configure the settings as follows while talking or monitoring.)

: Touch → [Sound] or [Display][*1] → configure the settings that you want to change (see the following table).

*1 [Sound] and [Display] are not displayed when talking or monitoring with a camera.

: ( ) → configure the settings that you want to change (see the following table).

Changing the receiving volume of incoming calls		Touch [Receiver volume], and then adjust the volume by touching [–] (Quieter) or [+] (Louder).	
		: "Volume" → (OK) → : Adjust the volume.	
Changing the owner's voice volume (output to the doorphone)[*1]		Touch [Owner's voice volume] and then adjust the volume by touching [Quiet] or [Normal].	
Using voice changer[*1]		Touch [Voice changer] → [On].	
		: "Voice changer" → (OK)	
Turning the doorphone's LED lights on or off[*1]		Touch [Illumination], and then touch [On] or [Off].	
		: "Illumination" → (OK) → : Select the required setting.	
Using backlight compensation for doorphone images[*1]		Touch [Backlight compensation] and then adjust the backlight compensation using either [–], [Off], or [+].	• [–]: use when faces appear too bright (makes images darker) • [Off]: turns off backlight compensation • [+]: use when faces appear too dark (makes images brighter)
		: "Backlight" → (OK) → : Adjust the backlight compensation.	
Changing the screen's brightness		Touch [Brightness], and then adjust the brightness by touching [–] (Darker) or [+] (Brighter).	
		: "Brightness" → (OK) → : Adjust the brightness.	

*1 Can only be configured when talking or monitoring with a doorphone.

9.3 Ringtone settings

9.3.1 Ringtone type settings

You can change the ringtone that is heard when receiving calls from the doorphone or the camera. (The ringtone of the intercom call cannot be changed.)

– For information about how to configure settings, see page 35 for the main monitor and page 37 for the sub monitor.

9.3.2 Ringtone volume settings

The ringtone volume for doorphone calls, camera calls, and paging can be changed.

: See page 35.

: Perform the following procedure.

1 When the information screen is displayed, select the item to change the volume for with and then press (OK).

2 : Adjust the volume.*1

3 To end the operation, press OFF.

*1 To mute the sound, press and hold until is displayed. (The paging volume cannot be turned off.)

– To activate the sound again, press .

9.4 Functions settings list - main monitor

You can change the settings to match how the main monitor is used.

How to change settings

1. From the top menu, touch → .
2. Touch the item name, function name, and setting contents.
   - Operations may have to be repeated depending on the function.
3. To end the operation, press OFF.

Note:

- The setting function screen automatically quits if an incoming call is received or if no operations are performed for about 90 seconds.
- In the following table, **< >** indicates the default settings.

Item name: Initial settings

Sub-menu			Settings	
1	2	3		
Time and date settings*1	–	–	2013-1-1 0:00	
Time display format	–	–	**<12h>**, 24h	
Set day for first day of week	–	–	Sunday, **<Monday>**	
Zoom position settings	Doorphone 1 - 2	–	–	For details, see page 14.
Wide/Zoom settings	Doorphone 1 - 2	When visitors come/When monitoring	Zoom, **<Wide>**, All	

Sub-menu			Settings
1	2	3	
Power supply frequency	–	–	**<50 Hz>**, 60 Hz ● To prevent mottled or uneven colour from being displayed, choose the appropriate power supply frequency for your area.

*1 When using the product for the first time, follow the on-screen instructions to configure this setting. (→ page 14)

Item name: Ringtone

Sub-menu		Settings	
1	2		
Ring volume	Doorphone	**<Loud>**, Normal, Quiet, Mute	
	Camera	**<Loud>**, Normal, Quiet, Mute	
	Page	**<Loud>**, Normal, Quiet	
Ringtone	Doorphone 1	**<Sound 1>**, Sound 2, Sound 3, Sound 4	**<Normal>**, Repeat
	Doorphone 2	Sound 1, **<Sound 2>**, Sound 3, Sound 4	**<Normal>**, Repeat
	Camera 1 - 4	**<Sound A>**, Sound B, Sound C, Sound D	

Item name: Recording/Play

Sub-menu		Settings
1	2	
Record calls	Doorphone 1 - 2/ Camera 1 - 4	Enable, **<Disable>** ● If you want to record images and audio until the end of calls (→ page 19, 24) select [Enable].
Delete all images	Internal memory	Yes, No
	SD card	Yes, No

Item name: SD card

Sub-menu		Settings	
1	2		
Format	–	Yes, No	For details, see page 40.
Copy to SD card	–	Yes, No	

Item name: Connected devices

Sub-menu			Settings	
1	2	3		
Camera	–	–	For details, see page 25.	
Doorphone connection*1	Doorphone 1	–	**<Device connected>**, Auto detection, Device not connected	
	Doorphone 2	–	Device connected, **<Auto detection>**, Device not connected	
Electric lock	Doorphone 1	Electric lock 1	**<No connection>**, Unlock for 1 second - Unlock for 7 seconds	For details, see page 28.
	Doorphone 2	Electric lock 2		
	Unlocking buzzer sound	–	**<On>**, Off	

Sub-menu			Settings	
1	2	3		
Repeater connections	**Repeaters are connected separately:** Repeater 1 - 2 **Repeaters are connected together:** Repeater (connected together)	–	**<Sub monitor station>**, Camera	For more information about connecting repeaters, see page 38.
Automatic illumination	Doorphone 1 - 2	When visitors come/When monitoring	**<Enable>**, Disable ● With this setting, you can select whether or not to automatically turn on the LED lights when the area surrounding the doorphone is dark.	
Lobby connection	–	–	Device connected, **<Device not connected>** ● This setting is for apartment complexes. Only select [Device connected] when an optional lobby station (→ page 4) is connected to the main monitor.	

*1 Select [Device not connected] for doorphones that are no longer used.

Item name: Register/Cancel

Sub-menu		Settings
1	2	
Register	Sub monitor station/Camera/ Repeater	Registration method: Sub monitor station and Repeater → page 38 and 39, Camera → page 22
Cancel		Cancellation method: Sub monitor station, Camera, and Repeater → page 39

Item name: Other

Sub-menu		Settings
1	2	
Touch sound	–	**<On>**, Off
Initialize settings*1	–	Initialize settings + Delete images, Only initialize settings ● Select [Initialize settings + Delete images] when disposing, transferring, or returning the product.
Demo mode	–	Do not use this setting unless the product is being used in a sales display. On, Special SD card required, **<Off>**

*1 The following settings are not initialized.
- [Power supply frequency], [Electric lock], [Repeater connections], [Lobby connection], and [Camera] settings.
- Registration information of devices registered to the main monitor. (All devices remain registered to the main monitor even after initialization.)

9.5 Function settings list - sub monitor

You can change the settings to match how the sub monitor is used.

How to change settings

1. In the information screen, press ( ).

2. : Select the function name. → (OK)

3. : Select the setting contents. → (OK)

- To adjust "Contrast", use and then press (OK).
- To execute "Initialize", press F1 (Yes). (Initialization is completed when the screen turns off.)

4. To end the operation, press OFF.

Note:

- The setting function screen automatically quits if an incoming call is received or if no operations are performed for about 60 seconds.
- In the following table, **< >** indicates the default settings.

Sub-menu		Settings	
1	2		
Ringtone	Doorphone 1	**<Sound 1>**, Sound 2, Sound 3, Sound 4	**<Normal>**, Repeat
	Doorphone 2	Sound 1, **<Sound 2>**, Sound 3, Sound 4	**<Normal>**, Repeat
	Camera 1 - 4	**<Sound A>**, Sound B, Sound C, Sound D	
Key sound	–	**<On>**, Off	
Contrast	–	The contrast can be adjusted to 5 different levels (default setting: level 3). When it is difficult to see the monitor display, adjust the contrast as necessary.	
Register	–	Yes, No ● Used when registering sub monitors to the main monitor. – The supplied sub monitor is pre-registered to the main monitor. – See page 38 for information about re-registering cancelled sub monitors.	
Initialize	–	Yes, No ● The sub monitor remains registered to the main monitor even if its settings are initialized. (The registration information is not deleted.)	

10.1 Registering sub monitors

Additional sub monitors (additional accessories, → page 4) can be registered and used with this product.

10.1.1 Registering a sub monitor to the main monitor

1 : From the top menu, touch → → [Register/Cancel] → [Register] → [Sub monitor station] → select the number of the sub monitor to be registered.

- After this, use the sub monitor and complete the following steps within about 2 minutes.

2 *1: When "Please register the device." is displayed on the sub monitor screen, press (OK) → F1 (Yes).

- "Registering completed" is displayed.

3 : Press OFF.

*1 To re-register cancelled sub monitors:
( ) → : "Register" → (OK) → F1 (Yes)

10.2 Using repeaters

If the sub monitor or camera are used away from the main monitor, or if there are obstructions (→ page 7) between the sub monitor or camera and the main monitor, the following problems may occur. In these cases, using a repeater (additional accessory, → page 4) may improve transmissions between the devices.

– calls with the sub monitor cut out and images are distorted
– images from the camera are distorted or notifications from camera sensors cannot be received
– When is displayed for the sub monitor or the camera's indicator lamp flashes in red, the main monitor cannot connect to the sub monitor or camera

Note:

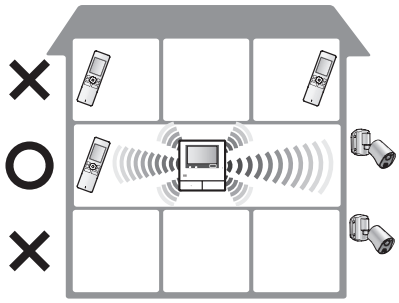
- Up to 2 repeaters can be used. A single repeater can be used to send signals to multiple sub monitors or cameras. However, the same repeater cannot send signals to both sub monitors and cameras.
- Signal range differs depending on factors such as the structure of rooms or the types of walls used. After registering devices to the main monitor (→ page 39), see the repeater's Getting Started for information about appropriate installation locations.

Signal range and repeater installation example

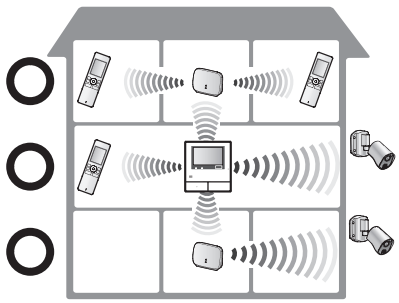
Using each repeater connected separately

This extends signals away from the main monitor. Because signals are sent through the main monitor, different types of devices can be connected to each repeater. (For example, sub monitors can be connected to one repeater and cameras can be connected to another.) This is useful when you want to connect to different types of devices over shorter distances.

When repeaters are not used:



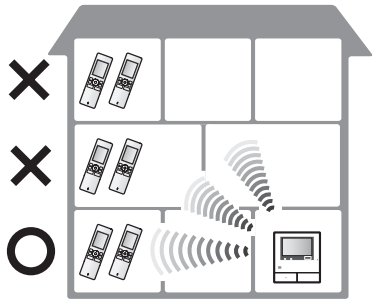
When repeaters are used:



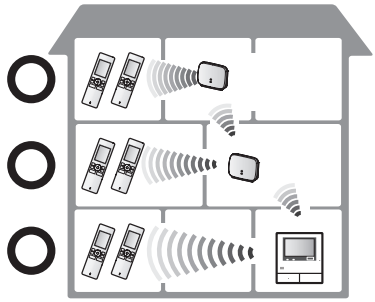
Using 2 repeaters connected together

This extends the signal away from the main monitor by sending signals directly between repeaters. Because the signals are sent between repeaters, the same type of device must be connected to both repeaters (all sub monitors or all cameras). This is useful when you want to connect to the same type of devices over long distances.

When repeaters are not used:



When repeaters are used:



10.2.1 Registering a repeater to the main monitor

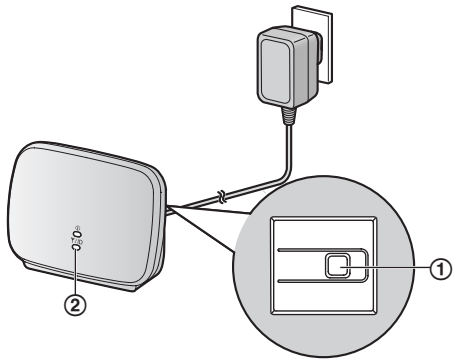
1 : From the top menu, touch → → [Register/Cancel] → [Register] → [Repeater] → select the number of the repeater to be registered.

2 **Registering the first repeater:**
Go to step 3.
Registering the second repeater:
Select the connection method according to how you want to use the repeater. (→ page 38)
- If [Connected together] is selected, go to step 5.

3 Touch [Next].

4 Select the device that you want the repeater to connect to.
- After this, use the repeater and complete the following steps within about 2 minutes.

5 : Connect power to the repeater that you want to register, and then press PROGRAM (①) for about 3 seconds.
- The ⩛/ID indicator (②) flashes green.



- The indicator lights when the registration is completed.
  (Depending on the signal status, the indicator may not light in green. In this case, see the repeater's Getting Started.)

6 : Press OFF.

Note:
- When using devices in separate buildings or over long distances, cut outs and image distortions may not be improved even if a repeater is used.

10.3 Cancelling sub monitors, cameras, and repeaters

– Cancelling can only be performed on the main monitor.

1 From the top menu, touch → → [Register/Cancel] → [Cancel] → select the type of device to be cancelled.

2 Select the device to cancel from the displayed list.
- Cancelling repeaters:
  When 2 repeaters are connected together, only the farthest from the main monitor can be cancelled.

3 Confirm the message and then touch [Yes].
- A beep sounds and "Cancel completed" is displayed.

4 To end the operation, press OFF.

Important:
- **To prevent incorrect operations, remove the batteries from cancelled sub monitors.**

10.4 Using SD cards (formatting/ copying data/playing images)

Formatting:

SD cards formatted by PCs or other devices must be formatted by the main monitor before they can be used.

Copying recorded images (internal memory → SD cards)

A maximum of 50 recorded images saved to the main monitor can be copied at one time.

- Copied data is saved to the "BACKUP" folder in the "PRIVATE" folder of the SD card (→ page 41). If data is copied again to the same SD card, all of the recorded data already saved to the "BACKUP" folder is overwritten.
- Copied data can only be played on a PC and cannot be played on the main monitor.

Operations (main monitor only)

1 Insert the SD card that you want to format or copy recorded data to into the SD card slot. (→ page 9)

2 From the top menu, touch → → [SD card].

3 **When formatting:**
Touch [Format], confirm the message and then touch [Yes].
When copying recorded data:
Touch [Copy to SD card], confirm the message and then touch [Yes].

Important:

- **The SD card indicator flashes while formatting or copying. Do not remove the SD card or press the RESET button (→ page 10) when the indicator is flashing.**

4 To end the operation, press OFF.

- Remove the SD card as required.

10.4.1 Playing images on a PC

By inserting an SD card into an SD card slot on a PC or an SD card reader connected to a PC, images saved on the SD card (still images and videos) can be played on a PC.

– Still images (JPEG format) can be viewed with viewer software that supports JPEG.
– Videos (Motion JPEG format) can be played with QuickTime Player. (On PCs installed with Windows® 7 or Windows® 8, videos can also be played with Windows Media® Player.)

Supported operating systems*1:

Windows® XP/Windows Vista®/Windows® 7/Windows® 8/Mac OS® X

*1 Images and videos may not be able to be played correctly depending on the compatibility between the viewer or video software and the operating system.

How to play images:

See the PC's operating instructions.

10.4.2 SD card folder structure and file formats

When an SD card is inserted into the main monitor, folders are created in the SD card. Data directly saved to the SD card and data copied from the internal memory to the SD card are saved to separate folders.

- Do not change the name of folders or delete folders with a PC. (If you do so data cannot be played with the main monitor.)
- The following 3 types of files are saved to the SD card.
  – JPG: still images (JPEG format)
  – MOV: videos (Motion JPEG format)
  – TXT: recording data (text format)

Recorded image folder structure and file formats when saving data directly to SD cards

Folder structure

Example:

DCIM/100_D501
└①┘

① Folder number (100 - 129)

- When using SD cards with data saved from other devices, folder numbers 100 - 999 are available.

File format

Example:

DRI_0001.JPEG
└①┘└②┘

① Name of the device the image was recorded from

- DR1 - DR2: Doorphone 1 - 2
- CM1 - CM4: Camera 1 - 4

② File number

- 1 recorded image is saved to each number.
- File numbers from 0001 to 0100 are created in each folder.

Folder structure and files types of data copied from the internal memory of the main monitor to the SD card

Folder structure

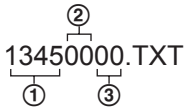
Example:

PRIVATE/PANA_GRP/DOOR/BACKUP/20141013
(①)

① Recorded date (Example: October 13, 2014)

File format

Example:



① Recorded time (Example: 13:45)

② Counter (00 - 49)

③ Recording number for each recorded file

- 00: indicates the files contain recording information
- 01 - 08: indicates the image number from among 8 images

10.5 Cleaning

Wipe the product with a soft, dry cloth.
For excessive dirt, wipe the product with a slightly damp cloth.

Important:

- **Do not use any cleaning products that contain alcohol, polish powder, powder soap, benzine, thinner, wax, petroleum, or boiling water. Also do not spray the product with insecticide, glass cleaner, or hair spray. This may cause a change in colour or quality of the product.**

Cleaning the charger:

For safety, disconnect the charger from the power supply before cleaning.

Cleaning the sub monitor:

To avoid mistakenly operating the sub monitor, remove its batteries before cleaning.

Cleaning the main monitor's touch panel:

From the top menu, touch → .

– The "Touch panel cleaning" screen is displayed for approx. 90 seconds. You can clean the main monitor during this time. (Press OFF when you have finished.)
– Use a soft, dry cloth to clean the touch panel making sure not to scratch its surface.

10.6 Specifications

Main monitor (VL-MWD501BX)

Power source	Power supply unit (VL-PS241) 24 V DC, 0.5 A
Power consumption	Standby: approx. 1.4 W During operation: approx. 10 W
Dimensions (mm) (height × width × depth)	Approx. 180×165×21 (excluding protruding sections)
Mass (weight)	Approx. 470 g
Operating environment	Ambient temperature: approx. 0 °C to +40 °C Relative humidity (non-condensing): up to 90 %
Display	Approx. 5 inches, wide colour display
Talking method	Hands-free
Installation method	Wall mount (mounting bracket supplied)
Frequency range	1.88 GHz to 1.90 GHz
Option output (A contact)	Rated load: 24 V AC/DC, 0.3 A or lower Minimum applicable load: 5 V DC, 0.001 A (Output when there is a call from the doorphone (→ page 16).)

- **Compatible SD cards**
  The following SD cards, that comply with the SD standards, can be used (we recommend SD cards manufactured by Panasonic).
  – Supported SD card types[*1]
    SD memory card[*2]: 2 GB
    SDHC memory card[*3]: 4 GB - 32 GB
    SDXC memory card: 48 GB and 64 GB
  – Format
    SD memory card: FAT16
    SDHC memory card: FAT32
    SDXC memory card: exFAT

*1 See page 18 for a guide to the capacity and number of recordings possible with SD cards.
*2 miniSD and microSD memory cards can also be used. However, an adaptor is required.
*3 miniSDHC and microSDHC memory cards can also be used. However, an adaptor is required.

Power supply unit (VL-PS241) (indoor use only)

Power source	Input: 220-240 V AC, 0.2 A, 50/60 Hz Output: 24 V DC, 0.6 A

Dimensions (mm) (height × width × depth)	Approx. 104×100×54 (excluding protruding sections)
Mass (weight)	Approx. 215 g
Operating environment	Ambient temperature: approx. 0 °C to +40 °C Relative humidity (non-condensing): up to 90 %

Doorphone (VL-V554BX/VL-V554UBX)

Power source	Power supplied by the main monitor 20 V DC, 0.23 A
Dimensions (mm) (height × width × depth)	**VL-V554BX:** approx. 169×118 ×30 (excluding protruding sections) **VL-V554UBX:** approx. 169×118 ×16.5 (excluding sections embedded into the wall)
Mass (weight)	**VL-V554BX:** approx. 405 g **VL-V554UBX:** approx. 345 g
Operating environment	Ambient temperature: approx. -10 °C to +50 °C Relative humidity (non-condensing): up to 90 %
Viewing angle	Horizontally: approx. 170° Vertically: approx. 115°
Installation method	**VL-V554BX:** surface mount (mounting base supplied) **VL-V554UBX:** flush mount (flush mounting box supplied)
Minimum illuminance required	1 lx (within approx. 50 cm from the camera lens)
Lighting method	LED lights
IP rating	IP54*1
IK rating	IK07

*1 Water resistance is only assured if the doorphone is installed correctly according to the instructions in the Installation Guide, and appropriate water protection measures are taken.

Sub monitor (VL-WD613BX)

■ **Main body**

Power source	Rechargeable Ni-MH (AAA × 2)
Dimensions (mm) (height × width × depth)	Approx. 173×52×30 (excluding protruding sections)
Mass (weight)	Approx. 160 g (including the batteries)
Operating environment	Ambient temperature: approx. 0 °C to +40 °C Relative humidity (non-condensing): up to 90 %
Display	Approx. 2.2 inches, colour display
Frequency range	1.88 GHz to 1.90 GHz
Talking method	Hands-free
Operating time*1	Standby use: approx. 80 hours
Charging time*2	Approx. 8 hours
Transmitting range	Approx. 100 m (line-of-sight distance from the main monitor)

*1 When used fully charged in an operating temperature of 20 °C.

*2 When the operating temperature is 20 °C. The charging time may increase when the operating temperature is lower than this.

■ **Charger**

Power source	AC adaptor (PNLV226BX/ PNLV226E) Input: 220-240 V AC, 0.1 A, 50/60 Hz Output: 5.5 V DC, 0.5 A
Power consumption	Standby: approx. 0.4 W (when the sub monitor is not placed in the charger) During charging: approx. 1.4 W
Dimensions (mm) (height × width × depth)	Approx. 43×81×76 (excluding protruding sections)
Mass (weight)	Approx. 70 g (excluding the AC adaptor)
Operating environment	Ambient temperature: approx. 0 °C to +40 °C Relative humidity (non-condensing): up to 90 %

Note:

- Design and specifications are subject to change without notice.

11.1 Troubleshooting

Monitor display (doorphone images)

Problem	Cause & Solution	Page
Images appear distorted.	● Images may appear distorted because of the characteristics of the camera lens. This is not a malfunction.	-
The background appears greenish.	● At night or when there is poor light in the area around the doorphone, lights or white objects near the doorphone may appear greenish. This is not a malfunction.	-
Images at night are dark and faces cannot be identified.	● [Automatic illumination] is set to [Disable]. → Change the setting to [Enable]. ● Even when the doorphone's LED lights are lit, because the light from the LED lights cannot illuminate the edges of the visible area (the areas directly next to the doorphone), faces of people may not be identifiable even when they are close to the doorphone. → We recommend installing extra lights in the area around the doorphone.	36 - -
The images of people's faces are dark.	● Images of people's faces appear dark when there is strong sunlight or a backlight in the area around the doorphone. → Use the backlight compensation function.	33
Images are dirty or unclear. ● Images are not in focus.	● There is dirt on the surface of the doorphone's lens. → Wipe the lens with a soft, dry cloth. ● There is water condensation on the surface of the doorphone's lens. → Wait for the condensation to evaporate.	41 -
Images are white or black.	● The brightness of the display is not correctly adjusted. → Adjust the brightness when images are displayed.	33
Images are white, or white lines or circles are shown on the display.	● Strong light such as sunlight is shining into the lens of the doorphone causing images to be difficult to see on the display. (This is not a malfunction.) → Locating the doorphone away from direct sunlight or changing the angle that the doorphone is installed may help reduce this problem.	-
Images are flickering.	● AC (alternating current) lights such as fluorescent lights are used near the doorphone. → AC (alternating current) lights such as fluorescent lights may cause flickering in dark environments. (This is not a malfunction.)	-
Images of the area you want to view in the zoom screen are not displayed correctly.	● Change the zoom position setting to a suitable position. → Configure the [Zoom position settings] settings.	14
Images displayed on the sub monitor distort or are displayed slowly. (It takes 5 seconds or more to be displayed.)	● The antenna on the sub monitor is being covered with your hand. → Do not cover it. ● The sub monitor is too far from the main monitor, or there is an object such as a concrete wall obstructing the signal. → Move the sub monitor closer to the main monitor or to an area that does not have any obstructions.	11 7

Monitor display (camera images)

Problem	Cause & Solution	Page
Even though there are people, they cannot be viewed at all or can only be partially viewed.	● You may not be able to correctly view people with the camera in the following cases. – When people are moving near the edge of the sensor range. – When people move slowly or quickly across the front of the camera. – When people move closely across the front of the camera (approx. 1 m).	-
Images are dirty or unclear (out of focus).	● There is dirt on the surface of the camera's lens cover. → Wipe the lens cover with a soft, dry cloth.	-
Images are not displayed with the correct brightness.	● The brightness in the area where the camera is installed is changing rapidly. → Wait about 1 second. The brightness will be automatically adjusted.	-
Images are blurry and people's faces or other objects are hard to distinguish.	● When images of dark areas are viewed, due to the characteristics of the image sensor of the camera, people's faces can be hard to distinguish. (This is not a malfunction.) → We recommend installing extra lights in the area around the camera. (The camera's LED lights cannot produce enough light to illuminate the area in this situation.)	-
Objects in images are blurred.	● Images may blur when the subject moves. (This is a characteristic of the image sensor of the camera and is not a malfunction.) ● Images of objects can easily blur when images of dark areas are viewed or if the object is dark. → We recommend installing extra lights in the area around the camera. (The camera's LED lights cannot produce enough light to illuminate the area in this situation.)	-
White points or coloured light points are displayed in images.	● White points or coloured light points may appear in images when images of dark areas are viewed or if the object is dark. (This is a characteristic of the image sensor of the camera and is not a malfunction.) → We recommend installing extra lights in the area around the camera. (The camera's LED lights cannot produce enough light to illuminate the area in this situation.)	-
Images have uneven colour.	● AC (alternating current) lights such as fluorescent lights may cause uneven colouring or flickering. → Setting [Uneven colour prevention] to [On] may reduce the uneven colour and flickering. (However, this may reduce the image quality of images with dark areas.)	26

Ringtone

Problem	Cause & Solution	Page
The ringtone for the doorphone or camera does not sound.	● The ringtone volume is muted. → Activate the sound for the ringtone.	34
	● The sub monitor's batteries are discharged. → Charge the batteries.	13

Calls (doorphone, camera, and intercom calls)

Problem	Cause & Solution	Page
Sound cuts in/out or fades.	• The surroundings of the main monitor, the sub monitor, or the doorphone are noisy, causing the sound to cut out or fade. → Try using the "Press-to-talk" mode. • When talking with the sub monitor or camera: The antenna (→ page 11) on the sub monitor is being covered with your hand. → Do not cover it. • When talking with the sub monitor or camera: The sub monitor or camera is too far from the main monitor, or there is an object such as a concrete wall obstructing the signal. → Move the sub monitor or camera closer to the main monitor or to an area that does not have any obstructions. If the sub monitor or camera cannot be moved to another area, installing a repeater (additional accessory) may improve the signal.	16 - 7 38
Calls cannot be heard because of noise or feedback.	• Noise or feedback may occur when you are too close to the other party. → Move away from the other party.	-
Your voice cannot be heard by the visitor but the visitor's voice can be heard.	• You are using the "Press-to-talk" mode. (is displayed on the main monitor and is displayed on the sub monitor.) → When using the "Press-to-talk" mode, the visitor can hear your voice only while you are pressing TALK.	16

Sub monitor (charging)

Problem	Cause & Solution	Page
flashes and 2 short beeps sound.	• The battery level is very low. → Charge the batteries immediately.	13
Even if you place the sub monitor on the charger, the charge indicator does not light up.	• The AC adaptor is disconnected from the power outlet. → Plug the AC adaptor into the power outlet firmly. • The sub monitor is not placed on the charger correctly. → Replace the sub monitor securely. (The charge indicator lights in red.) • The batteries are new or discharged. → Place the sub monitor on the charger and wait for a few minutes.	
The charge indicator does not go off after the batteries have been charged for about 8 hours.	• If the sub monitor is picked up off the charger or used during charging, the charging time will become longer. • The charging time may increase when the operating temperature is lower than 20 °C. • The charging time increases when the power of the main monitor is turned off or is displayed on the sub monitor. → Make sure the power of the main monitor is turned on, and charge the sub monitor in a location near the main monitor where is displayed for the sub monitor's signal display.	- - 7 13
flashes after only using the sub monitor 2 or 3 times after charging.	• Clean the ends of batteries (⊕ and ⊖) with a dry cloth and charge again. • It is time to replace the batteries.	13

Problem	Cause & Solution	Page
The sub monitor, the AC adaptor, or the charger is warm.	● This is normal. (It may feel a little warmer in summer than in winter.) → If it feels very hot, disconnect the AC adaptor from the power outlet and contact an authorised service centre.	-

Camera (sensor operations)

Problem	Cause & Solution	Page
Monitoring can be performed with the camera but sensor notifications are not received.	● The camera (sensor detection) is turned off. → Touch → .	23
	● The camera's [Sensor selection] setting is set to [Off] (not make detections). → Set [Sensor selection] to a setting other than [Off].	25
Sensors do not make detections. ● The motion detection and heat sensor do not work	**Motion detection/heat sensor** ● The sensors do not operate when [Sensor selection] is set to [Off] or [External sensor only]. → Check the settings.	25
	Motion detection does not work ● Motion detection does not operate at night when [Motion detection] is set to [Day only]. → Check the settings.	25
	● Detections may not be made when the object makes small movements. → Change the [Motion detection sensitivity] setting to a higher sensitivity.	25
	● Detections are hard to make when it is dark. → Use the heat sensor for detections or install lights to illuminate the area around the object.	-
	Heat sensor does not work ● The heat sensor does not operate at midday when [Heat sensor detection] is set to [Night only]. → Check the settings.	25
	● Detections may not be made in the following situations. – when reflective objects are in front of the camera and can interfere with the heat detection, such as glass – when snow is on the surface of the heat sensor – when people move towards the front of the camera	
	● When the outside temperature is close to the body temperature, it is hard to make detections. It is also hard to make detections when people wear thick clothes. → Change the [Heat sensor sensitivity] setting to a higher sensitivity.	25

Problem	Cause & Solution	Page
The sensors do not work correctly. ● Sensors are triggered each time a car passes by (separated by more than 5 m) ● Sensors are triggered when there are no people near the camera.	**Motion detection/heat sensor** ● In the following situations, the sensors are triggered by detecting changes to the temperature and movement of objects. – When a car enters the detection range. (When a car or light from a car's headlights enters the detection range, movement is detected. The high temperature of a car's muffler or bonnet may cause sensors to be triggered even from 5 m away, or more.) – When objects that are in the detection range are moved by wind, such as tree branches or clothes hung out to dry. – When small animals such as dogs or cats enter the detection range. – When rain or snow falls. → Adjust the angle of the camera so that it does not face roads. → When using motion detection, adjust the detection range with the [Motion detection range] setting. To avoid mistakenly detecting light from car headlights at night, set [Motion detection] to [Day only]. → When using the heat sensor, you can use the heat sensor's lever to adjust the sensor's angle and the sensor range cap to adjust the detection range. (See the camera's manuals for more information.) **Heat sensor only** ● The heat sensor may make incorrect detections in the follow locations. – where the camera can be exposed to direct sunlight – near heating and cooling devices that cause rapid temperature change – in a greasy or moist place – underneath outdoor lights or other areas that can become hot – near fire or heating devices – where the camera can be exposed to interference from magnetic devices – where reflective objects are in front of the camera and can interfere with the heat detection, such as glass – where there are strong light emitting devices such as fluorescent lights that can affect the temperature – near devices that emit radio waves, such as mobile phones ● When the outside air temperature is cold, the detection range (approx. 5 m) becomes longer and too many detections may be made. → Change the [Heat sensor sensitivity] setting to a lower sensitivity.	- 25 26 - - 25
The heat sensor has trouble making detections.	● The surface of the heat sensor is dirty. → Wipe the surface of the heat sensor with a soft, dry cloth.	-
People moving towards the front of the camera cannot be detected.	● Because of the characteristics of the sensors, the camera may not be able to detect people moving towards the front of the camera. → Perform the following operations. – Change the camera location so that objects pass the camera from the sides. (It is easier to detect objects moving sideways in front of the camera.) – If you want to detect objects moving towards the front of the camera, use a commercially available external sensor. (See the camera's manuals for more information.)	-

Others

Problem	Cause & Solution	Page
● "Demo mode" is displayed on the screen. ● The ringtone regularly sounds. ● You cannot talk or make calls.	● The [Demo mode] function setting is configured on the main monitor. → From [Other] in the function settings, set [Demo mode] to [Off].	36
The product does not work with correct operations. The product does not work properly.	● Perform the following operations. – : Press the RESET button on the bottom side of the main monitor with a pointed object. (Recorded images and configured settings are not affected.) – : Remove the battery and insert it again. (Recorded images and configured settings are not affected.)	10 -
The main monitor does not work properly. ● Nothing is displayed on the monitor. ● The ringtone does not sound. ● Voices cannot be heard.	● Check the power connection. ● If the power is connected, there may be a problem with the electrical wiring. → Contact an authorised service centre.	-
Notifications for camera detections do not come to the sub monitor.	● The sub monitor is too far from the main monitor, or there is an object such as a concrete wall obstructing the signal. → Move the sub monitor closer to the main monitor or to an area that does not have any obstructions. ● The sub monitor's batteries are discharged. → Charge the batteries.	7 13
When you touch the touch panel of the main monitor: ● the touch panel does not respond ● a button other than the one touched responds	● When the touch panel does not respond. – The touch panel is dirty. Clean the touch panel. – If cleaning does not help, adjust the touch panel. ● When a button other than the one touched responds. – The touch panel needs to be adjusted. **Adjusting the touch panel** **1.** While pressing OFF on the main monitor, press TALK 3 times. **2.** Follow the on-screen instructions and touch the "+" marks (in 5 places) with your finger. **3.** Touch [OK].	41 - -

11.2 Error messages - main monitor

When using devices for the first time or registering devices

Display	Cause & Solution	Page
"Cannot register"	● Registration failed because it was not completed within the specified time. → Check that the devices to be registered are correctly connected and receiving power, and then try again.	22 38 39

Camera connections

Display	Cause & Solution	Page
"Cannot connect to camera" "Cannot transmit"	● The camera is too far from the main monitor, or there is an object such as a concrete wall obstructing the signal. → Move the camera closer to the main monitor or to an area that does not have any obstructions. If the camera cannot be moved to another area, installing a repeater (additional accessory) may improve the signal.	7

11.3 Error messages - sub monitor

Display	Cause & Solution	Page
"Cannot connect to main monitor station" "Cannot connect to camera 1" (When there are multiple cameras, the camera number may not be 1.)	● The sub monitor or camera is too far from the main monitor, or there is an object such as a concrete wall obstructing the signal. → Move the sub monitor or camera closer to the main monitor or to an area that does not have any obstructions. If the camera cannot be moved to another area, installing a repeater (additional accessory) may improve the signal.	7
"Registration failed"	● Registration to the main monitor has not been completed. Bring the sub monitor closer to the main monitor and try registering again.	-

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